CDP-XA30ES

SERVICE MANUAL

AEP Model
E Model

Photo : Gold

Model Name Using Similar Mechanism	NEW
CD Mechanism Type	CDM36A-14A
Base Unit Type	BU-14A
Optical Pick-up Type	KSS-213B

SPECIFICATIONS

Compact disc player

Laser Semiconductor laser (λ = 780 nm)
Emission duration: continuous

Laser output Max 44.6 µW*
* This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up block with 7 mm aperture.

Frequency response 2 Hz to 20 kHz ±0.3 dB

Dynamic range More than 100 dB

Harmonic distortion CDP-XA50ES: Less than 0.0017 %
CDP-XA30ES: Less than 0.0018 %

Outputs

	Jack type	Maximum output level	Load impedance
LINE OUT (FIXED)	Phono jacks	2 V (at 50 kilohms)	Over 10 kilohms
LINE OUT (VARIABLE)	Phono jacks	2 V (at 50 kilohms)	Over 50 kilohms
DIGITAL OUT (OPTICAL)	Optical output connector	–18 dBm	Wave length: 660 nm
DIGITAL OUT (COAXIAL)	Coaxial output connector	0.5 Vp-p (75 ohms)	75 ohms
PHONES	Stereo phone jack	28 mW	32 ohms

– Continued on next page –

COMPACT DISC PLAYER

MICROFILM

SONY®

General

Power requirements

Where purchased	Power requirements
Europe	220 V – 230 V AC, 50/60 Hz
Other countries	110 V – 120 V or 220 V – 240 V AC, adjustable, 50/60 Hz

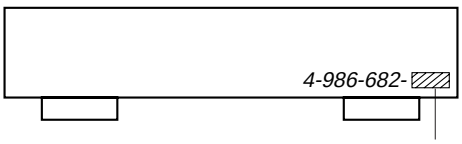
Power consumption	20 W
Dimensions (approx.) (w/h/d)	430 × 125 × 350 mm (17 × 5 × 13 7/8 in.) incl. projecting parts
Mass (approx.)	9.0 kg (19 lbs 13 oz)

Supplied accessories

Audio cord (2 phono plugs – 2 phono plugs) (1)
Remote commander (remote) (1)
Sony SUM-3 (NS) batteries (2)
Stabiliser (1)

Design and specifications are subject to change without notice.

MODEL IDENTIFICATION
– BACK PANEL –



AEP MODEL : 1 ☐ (CED)
Singapore Model : 2 ☐ (SP)

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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SECTION 1
SERVICING NOTES

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 ˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

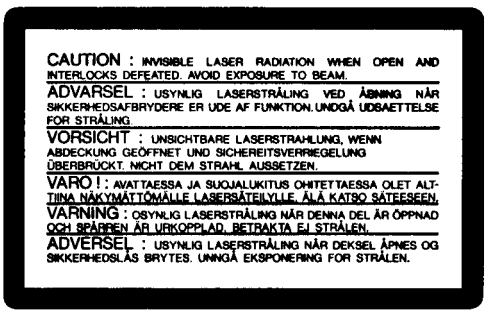
CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

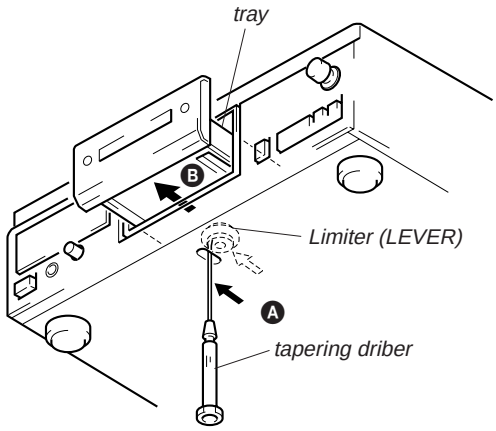
Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

The following caution label is located inside the unit.


CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.
VORSICHT : UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET UND SICHEREITSVERRIEGELUNG ÜBERBRÜCKT. NICHT DEM STRAHL AUSSETZEN.
VARO ! : AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING : OSYNLIG LASERSTRÅLING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.
ADVERSEL : USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.

1-1. HOW TO OPEN THE DISC TRAY WHEN POWER SWITCH TURNS OFF

① Insert a tapering driver into the aperture of the unit bottom, and move the limiter (LEVER) to direction of the arrow Ⓐ.
② Pull the tray to direction fo the arrow Ⓑ.

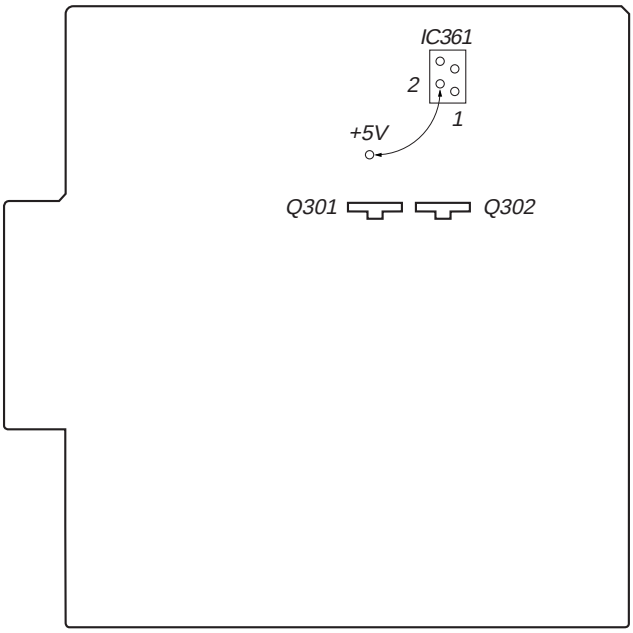


** To close the disc tray, move the driver in the reverse direction (to IN direction).*

1-2. PREPARATION FOR ADJUSTMENT AND MEASUREMENT

Perform connecting the IC361 pin ② of BD board to the line of +5V because this unit does not work without the stabilizer structurally.

Connecting Location:
[BD BOARD] (SIDE B)

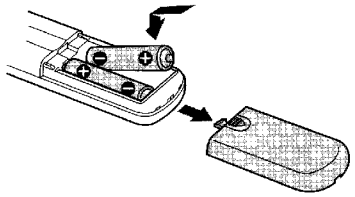


Unpacking

Check that you received the following items:
- Audio connecting cord (1)
- Remote commander (remote) (1)
- Sony SUM-3 (NS) batteries (2)
- Stabiliser (1)

Inserting batteries into the remote

You can control the player using the supplied remote. Insert two R6 (size AA) batteries by matching the + and – on the batteries. When using the remote, point it at the remote sensor ■ on the player.



When to replace batteries

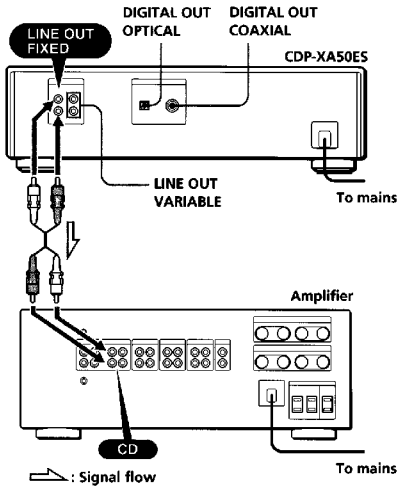
With normal use, the batteries should last for about six months. When the remote no longer operates the player, replace all the batteries with new ones.

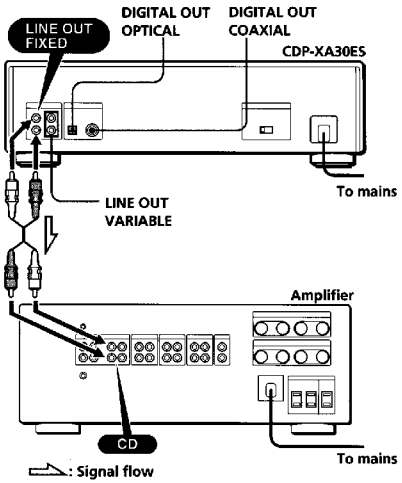
Notes
- Do not leave the remote near an extremely hot or humid place.
- Do not drop any foreign object into the remote casing, particularly when replacing the batteries.
- Do not expose the remote sensor to direct sunlight or lighting apparatuses. Doing so may cause a malfunction.
- If you don't use the remote for an extended period of time, remove the batteries to avoid possible damage from battery leakage and corrosion.

Hooking Up the System

Overview

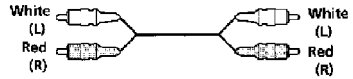
This section describes how to hook up the CD player to an amplifier. Be sure to turn off the power of each component before making the connections.



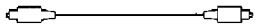


What cords will I need?

■ **When making analog hookups**
- Audio cord (supplied) (1)



■ **When making digital hookups**
- Optical cable POC-15 (not supplied)

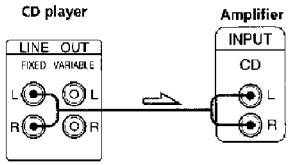


- Coaxial cable (not supplied)

Hookups

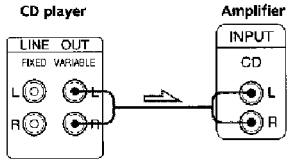
■ **When making analog hookups**

When connecting an audio cord, be sure to match the colour-coded cord to the appropriate jacks on the components: Red (right) to Red and White (left) to White. Be sure to make connections firmly to avoid hum and noise.



- **If you have an analog power amplifier**

Connect the amplifier via the VARIABLE LINE OUT jacks using the supplied audio cord. You can adjust the output level with the LINE OUT/PHONE LEVEL control on the player or the LINE OUT LEVEL buttons on the remote.



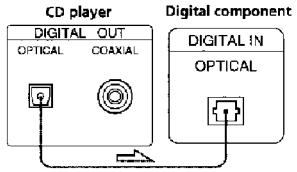
■ **When making digital hookups**

You can avoid deterioration of the signal during transmission, since the music signal output through the digital output connectors retains digital form. You can connect a digital component such as a digital amplifier, D/A converter, DAT or MD. When you connect a DAT or MD, you can make digital recordings from CDs.

Note that you cannot use fading in or out function (page 19) when making this connection.

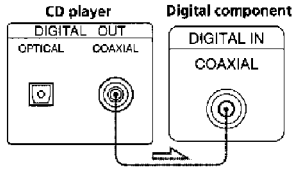
- **If you have a digital component with an optical digital input connector**

Connect the component via the DIGITAL OUT (OPTICAL) connector using the optical cable (not supplied). Take off the cap and plug in the optical cable.



- **If you have a digital component with a coaxial digital input connector**

Connect the component via the DIGITAL OUT (COAXIAL) connector using the coaxial cable (not supplied).

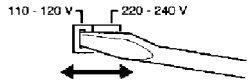


Note

When you connect via the DIGITAL OUT connector, noise may occur when you play CD software other than music, such as a CD-ROM.

Setting the voltage selector (voltage selector equipped models only)

Check that the voltage selector on the rear panel of the player is set to the local power line voltage. If not, set the selector to the correct position using a screwdriver before connecting the mains lead to a wall outlet.



Connecting the mains lead

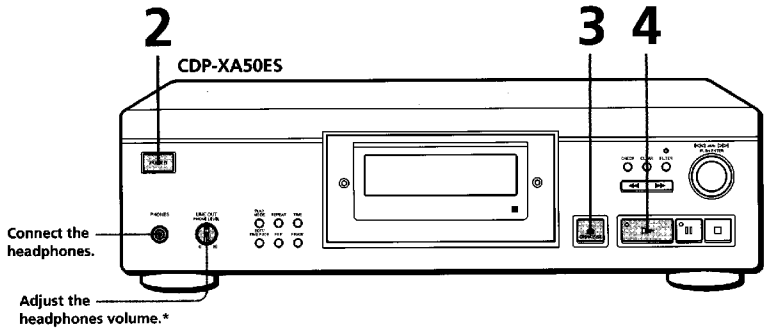
Connect the mains lead to a wall outlet.

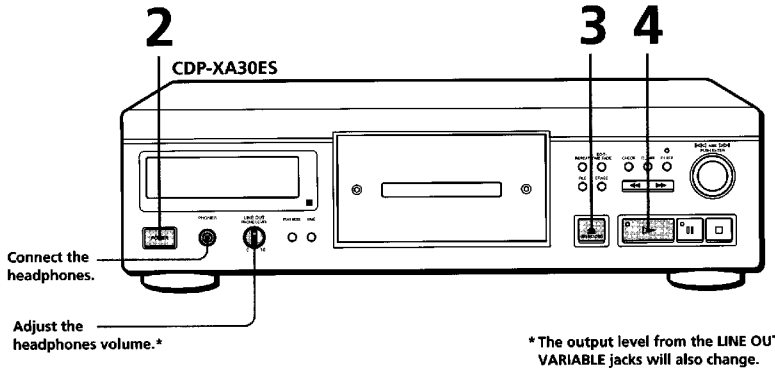
Removing the notice sheet

The notice sheet is put on the player. Remove the sheet before you use your player.

This section is extracted from instruction manual.

Playing a CD





*** The output level from the LINE OUT VARIABLE jacks will also change.**

- **See pages 4 – 5 for the hookup information.**

If you turn on the player with a CD in the tray
You can start playing automatically from the beginning of the CD. If you connect a commercially available timer, you can start playing the CD at any time you want.

1 Turn on the amplifier and select the CD player position.

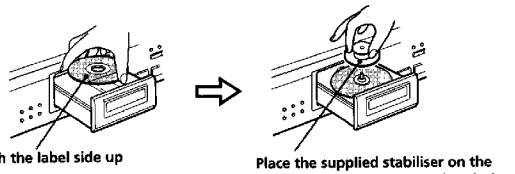
2 Press POWER to turn on the player.

If "– – – – –" appears in the display
Place the supplied stabiliser on the CD.
If you do not, this indication appears.

Note
In Step 3, do not place two or more CDs at the same time.
If you do so, you may damage the discs and/or the player.

If play doesn't start from the first track
Press PLAY MODE repeatedly until "SHUFFLE," "PROGRAM" and "CUSTOM INDEX" disappear from the display (or press CONTINUE on the remote).

3 Press ⏏ OPEN/CLOSE, and place a CD on the tray.



With the label side up

Place the supplied stabiliser on the CD. (The stabilisers supplied with the CDP-XA50ES and CDP-XA30ES are different.)

4 Press ▷.
The disc tray closes and the player plays all the tracks once (Continuous Play).
Adjust the volume on the amplifier.

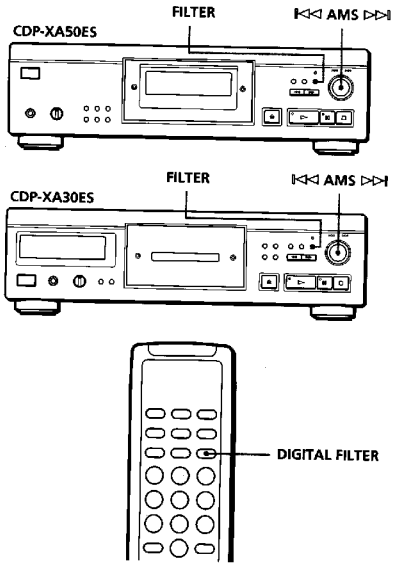
To stop playback

Press □.

When you want to	You need to
Pause	Press ▯▯
Resume play after pause	Press ▯▯ or ▷
Go to the next track	Turn I◁◁ AMS ▷▷I clockwise. (When using the remote, press ▶▶I.)
Go back to the preceding track	Turn I◁◁ AMS ▷▷I anticlockwise. (When using the remote, press I◀◀.)
Stop play and remove the CD	Press ⏏ OPEN/CLOSE

Customising the Sound of Your Music (Digital Filter Function)

This player has a variable coefficient (V.C.) digital filter. By selecting the type of filter you want, you can adjust the sound to match your system, your room, the music source, etc.



Selecting the filter directly on the player

1 Press FILTER.
The display shows the currently selected filter number and the filter indicator flashes.

2 Turn I◁◁ AMS ▷▷I until the digital filter number you want appears in the display.
As you turn the I◁◁ AMS ▷▷I control, the digital filter number changes cyclically as follows:

→ STD → 1 → 2 → 3A → 3b → 3C → 4A → 4b → 4C →

If you are playing a disc, the sound will be interrupted momentarily.

3 Push I◁◁ AMS ▷▷I to select the filter.
The original display reappears.
The selected digital filter number is stored in memory even if you turn off the power.

You can also change the digital filter number by pressing the FILTER button while the indicator is flashing

Selecting the filter using the remote

1 Press DIGITAL FILTER.
The display shows the currently selected filter number and the filter indicator flashes.

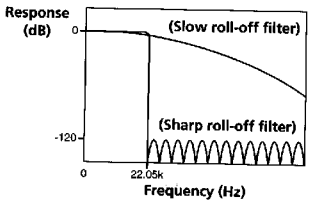
2 Press DIGITAL FILTER repeatedly until the display shows the digital filter number you want.
The digital filter number is stored and the original display reappears.

What is a variable coefficient (V.C.) digital filter?

CD players use digital filters to eliminate the noise generated during sampling. You can change the tone of your music by changing the cutoff characteristics of the digital filter.
This player has five types of filters with different coefficient characteristics: "STD," "1," "2," "3" and "4." In addition, digital filters "3" and "4" each have three coefficient patterns, A–C, for more detailed adjustments.
The following explains the terms you need to know to understand the characteristics of the digital filters used in this player.

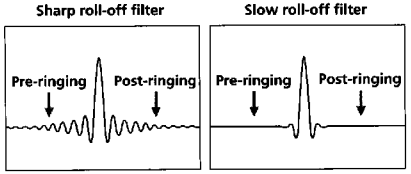
Sharp roll-off and slow roll-off

Digital filters can be roughly classified into sharp roll-off types and slow roll-off types, according to their cutoff characteristics.



Comparison of cutoff characteristics for sharp roll-off filter and slow roll-off filter

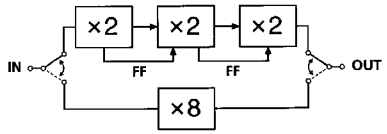
Sharp roll-off filters steeply cut off the noise generated during sampling over 22.05 kHz. This is a superior way of completely reproducing signals below 20 kHz: the basic principle behind digital audio.
On the other hand, slow roll-off filters cut off the noise generated during sampling gradually, and are able to hold pre-ringing and post-ringing (a kind of sound smearing) in the impulse response signal to a minimum.



Comparison of impulse response for sharp roll-off filter and slow roll-off filter

Cascade type and direct type

There are two methods of digital filter oversampling: the cascade type and direct type. The cascade type multiplies the signal by eight in three stages, and the direct type multiplies the signal by eight in one step.
Cascade filters have a high calculation efficiency, and can realise steep, high-precision sharp roll-off characteristics. Moreover, the ICs in this player use the full feed-forward (FF) method between each of the stages to improve the accuracy of the information transfer.
On the other hand, eightfold oversampling data can be obtained in one step with direct filters and there is no loss during transfer between calculation stages.
However, since such circuits are extremely large, this player can only support slow roll-off filters.



Characteristics of each digital filter

The following are the settings and characteristics for each of the five digital filters. Use this information to select the filter you want.

STD: Standard

This is a sharp roll-off, cascade type filter. It has the same characteristics as the digital filters that have long been used in Sony's high-end units and has a sharp cutoff that reaches –120 dB at 24 kHz. This filter uses the full feed-forward method between the calculation stages and gives the sound a wide range and ample spatial representation.

1: Spline

This is a slow roll-off, cascade type filter that uses a cubic spline function for interpolation. The spline function features smoother connections between points, and among spline functions, the cubic filter is the most straightforward. Ringing in the impulse response for this filter is much lower than for a sharp roll-off type filter. With this filter, the sound image is clear and sound reproduction is smooth.

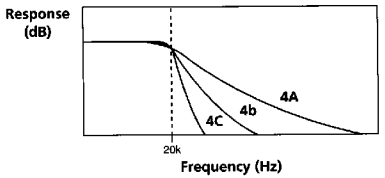
2: Plain

This is a slow roll-off, direct type filter. It features an absence of quantization between the digital filter output and the D/A converter input.
Direct type calculations are used within the digital filter and the bit length for the digital filter output and the D/A converter input are the same, so no requantization noise is generated between the digital filter and the D/A converter. This means that, of the 16-bit information taken from the disc, elements up to 20 kHz are input as far as the D/A converter without any nonlinear operation. This reproduces a sound with high clarity and strength.

3: Analog type
This is a slow roll-off, direct type filter that simulates a seventh-order analog Butterworth filter. This filter completely prevents pre-ringing in the impulse response. Also, since it simulates an analog filter, the high-region phase outside the audible frequency is rotated. The filters from 3A to 3C differ in degree of phase rotation. 3A is multiplied by one (the true analog characteristic), 3b is multiplied by 0.75, and 3C is multiplied by 0.5. The impulse response changes as shown in the figures below. The degree of pre-ringing and post-ringing varies with the degree of phase change. This gives the sound a feeling of warmth and depth.

Comparison of filter 3 impulse response

4: Butterworth
This is a slow roll-off, direct type filter and includes fifth-order through ninth-order Butterworth filters. However, the phase is linear and does not include the phase change possibilities of filter 3 (analog type). As the figure below shows, only the cutoff characteristics can be changed in the fifth-order (4A), the seventh-order (4b) and the ninth-order (4C). Ringing in the impulse response increases from the fifth-order filter to the ninth-order filter. This filter gives the sound a feeling of balance and comfort.



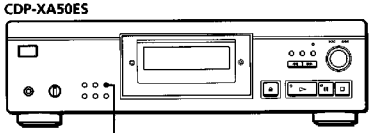
Comparison of filter 4 cutoff characteristics

Note
The Digital Filter function primarily changes characteristics outside the audible frequency. They cannot affect changes within the audible frequency such as those provided by the tone controls of the amplifier. Therefore, with certain combinations of hardware and software, there may be no noticeable effect after switching the filter.

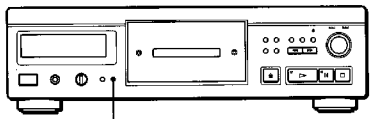
Using the Display

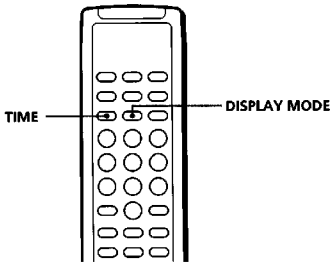
You can check information about the disc using the display.

CDP-XA50ES



CDP-XA30ES





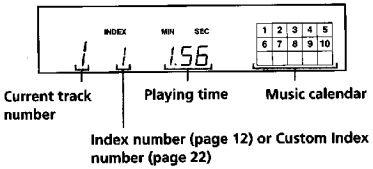
Checking the total number and playing time of the tracks

Press TIME before you start playing.
The display shows the total number of tracks, total playing time and music calendar.

While in Shuffle Play mode ("SHUFFLE" appears in the display; see page 13), a one-second access time blank is added between each track. This increase is automatically added to the total playing time in the display.
If the disc has more than 15 tracks, the ▶ indication appears next to 15 on the music calendar.
The information also appears when you press ⏏ OPEN/CLOSE to close the disc tray.

Display information while playing a disc

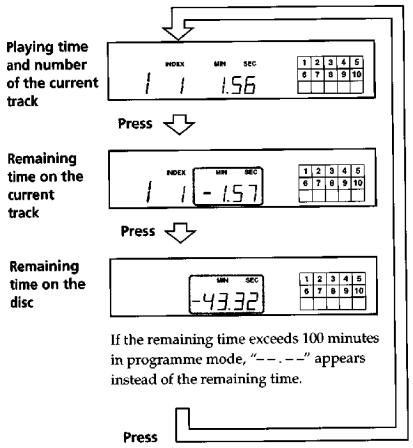
While playing a disc, the display shows the current track number, index number, playing time and the music calendar.



The track numbers in the music calendar disappear after they are played.

Checking the remaining time

Each time you press TIME while playing a disc, the display changes as shown in the chart below.



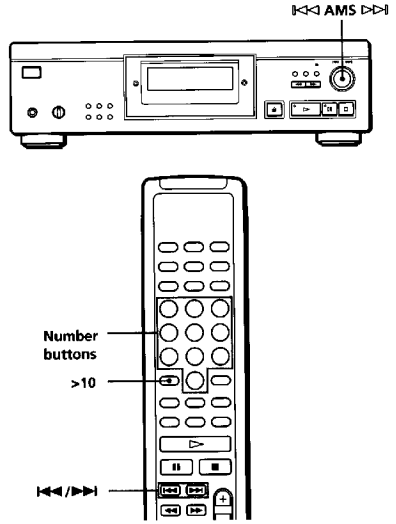
If the remaining time exceeds 100 minutes in programme mode, "−−.−−" appears instead of the remaining time.

Turning off the music calendar in the display

Each time you press DISPLAY MODE on the remote while playing a disc, the music calendar turns off and on alternately in the display.

Locating a Specific Track

You can quickly locate any track while playing a disc using the AMS (Automatic Music Sensor) on the player or number buttons on the remote.



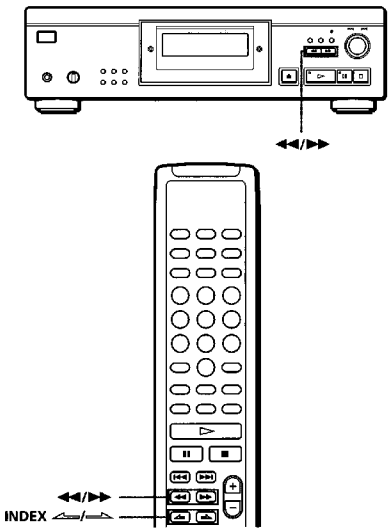
To locate	You need to
The next or succeeding tracks	Turn ⏮⏭ AMS ⏭⏭ clockwise until you find the track. When using the remote, press ⏭⏭ repeatedly until you find the track.
The current or preceding tracks	Turn ⏮⏭ AMS ⏭⏭ anticlockwise until you find the track. When using the remote, press ⏮⏮ repeatedly until you find the track.
A specific track directly	Press the number button of the track on the remote

When you directly locate a track numbered over 10

Press >10 first, then the corresponding number buttons on the remote. To enter "0," use button 10.
Example: To play track number 30
Press >10 first, then 3 and 10.

Locating a Particular Point in a Track

You can also locate a particular point in a track while playing a disc.



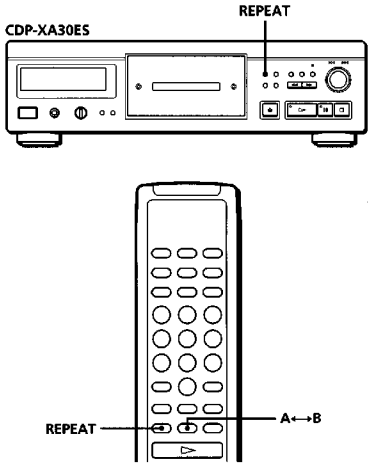
To locate a point	Press
While monitoring the sound	▶▶ (forward) or ◀◀ (backward) and hold down until you find the point
Quickly by observing the display during pause	◀◀/▶▶ and hold down until you find the point. You will not hear the sound during the operation.
Using an index (only for indexed discs)	INDEX △/△ on the remote repeatedly until you find the point

What is an index?
It is a number that divides a track or a disc into sections, enabling you to easily locate a desired point. You can determine if a disc uses indexes by its packaging.

Note
If "⁻⁻" appears in the display, the disc has reached the end while you were pressing ▶▶. Press ◀◀ or turn I◁◁ AMS ▷▷I anticlockwise to go back.

Playing Tracks Repeatedly

You can play tracks repeatedly in any play mode.



Press REPEAT while playing a disc.
"REPEAT" appears in the display. The player repeats the tracks as follows:

When the disc is played in	The player repeats
Continuous Play (page 6)	All the tracks
Shuffle Play (page 13)	All the tracks in random orders
Programme Play (page 14)	The same programme
Delete Play (page 16)	All the remaining tracks
Delete Shuffle Play (page 14, 16)	All the remaining tracks in random orders
Custom Index Play (page 23)	The portion between two indexes

To cancel Repeat Play
Press REPEAT repeatedly until "REPEAT" disappears from the display.

Repeating the current track

You can repeat only the current track.

While the track you want is being played, press REPEAT repeatedly until "REPEAT 1" appears in the display.

Note
You cannot repeat the current track while the disc is played in Custom Index Play mode (see page 23).

Repeating a Specific Portion (A↔B Repeat)

You can play a specific portion in a track repeatedly. This might be useful when you want to memorise lyrics.
Note that you cannot repeat a portion extending to two tracks.

1 While playing a disc, press A↔B on the remote when you find the starting point (point A) to be played repeatedly.
"A-" of "REPEAT A-" flashes in the display.

2 When you reach the ending point (point B), press A↔B again.
"REPEAT A-B" appears. The player plays this specific portion repeatedly.

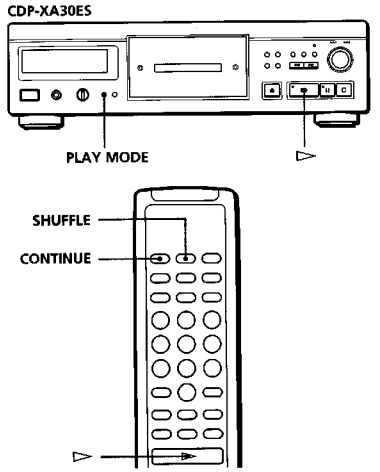
To cancel A↔B Repeat
Press REPEAT.

Setting a new starting point
You can move the repeating portion ahead by changing the starting point.
1 Press A↔B while the player is repeating the specific portion.
The ending point B becomes the new starting point A. "A-" of "REPEAT A-" flashes in the display.
2 When you reach the ending point (point B), press A↔B again.
"REPEAT A-B" appears. The player repeats between the new starting and ending points.

When you want to restart from the starting point A
Press ▷ during A↔B Repeat.

Playing in Random Order (Shuffle Play)

You can have the player "shuffle" tracks and play in a random order.



1 Press PLAY MODE repeatedly until "SHUFFLE" appears in the display.
When using the remote, press SHUFFLE.

2 Press ▷ to start Shuffle Play.
The [ ] indication appears while the player is "shuffling" the tracks.

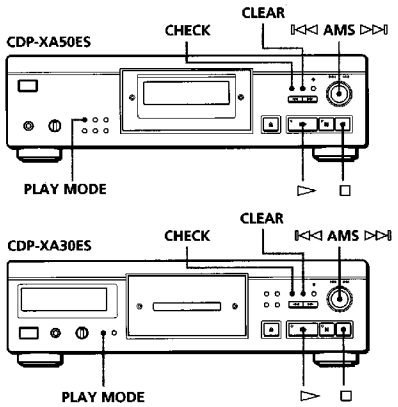
To cancel Shuffle Play
Press PLAY MODE four times (or CONTINUE on the remote).

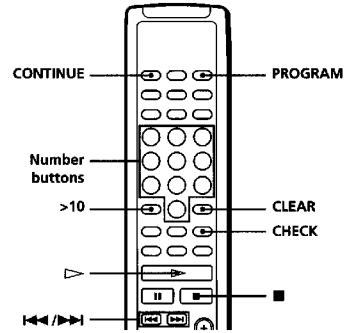
You can start Shuffle Play while playing
Press PLAY MODE once (or SHUFFLE on the remote), and Shuffle Play starts from the current track.

You can delete unwanted tracks during Shuffle Play (Delete Shuffle Play)
Press the number button of the track you want to delete on the remote.
The track number and "OFF" appear in the display, and then the track number disappears from the music calendar.
If you want to restore the track, press the number button again.
To restore all the tracks, press □ in stop mode.

Creating Your Own Programme (Programme Play)

You can arrange the order of the tracks on a disc and create your own programme. The programme can contain up to 24 tracks.

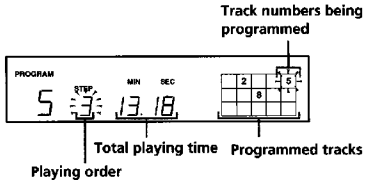




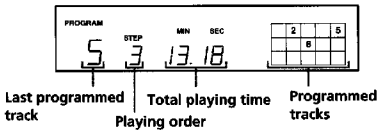
Creating a programme on the player

1 Press PLAY MODE repeatedly until "PROGRAM" appears in the display before you start playing.

2 Turn I◁◁ AMS ▷▷I until the track number you want appears in the display.
The playing order and the track numbers being programmed flash and the total playing time including the track appears in the display.



3 Push I◁◁ AMS ▷▷I to select the track.



If you've made a mistake
Press CLEAR, then repeat Steps 2 and 3.

4 Repeat Steps 2 and 3 to programme the tracks in the order you want.

5 Press ▷ to start Programme Play.

To cancel Programme Play
Press PLAY MODE three times.

When tracks, which aren't numerically consecutive on the disc, are programmed consecutively (i.e. 1, 3, 5 etc.)
A one-second access time blank is added between the tracks.

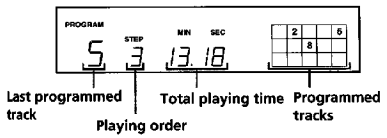
The programme remains even after the Programme Play ends
When you press ▷, you can play the same programme again.

Notes
- "– – . – –" appears instead of the total playing time in the display when it exceeds 100 minutes.
- "FULL" appears in the display when you try to add a track to a programme which already contains 24 tracks.

Creating a programme using the remote

1 Press PROGRAM before you start playing.
"PROGRAM" appears in the display.

2 Press number buttons of the tracks you want to programme in the order you want.
Example: To programme the tracks 2, 8 and 5
Press number buttons in the order 2, 8 and 5.



To select a track with a number over 10
Use >10 button (see page 11).

If you've made a mistake
Press CLEAR, then press the correct track number.

3 Press ▷ to start Programme Play.

To cancel Programme Play
Press CONTINUE.

You can check the total playing time while programming using the remote (Programme Edit)
To select a track, press I◀◀ or ▶▶I and check the total playing time. Then press PROGRAM to confirm your selection.

When tracks, which aren't numerically consecutive on the disc, are programmed consecutively (i.e. 1, 3, 5 etc.)
A one-second access time blank is added between the tracks.

The programme remains even after the Programme Play ends
When you press ▷, you can play the same programme again.

Notes
- "– – . – –" appears instead of the total playing time in the display when it exceeds 100 minutes.
- "FULL" appears in the display when you try to add a track to a programme which already contains 24 tracks.

Checking the track order

You can check your programme before or after you start playing.

Press CHECK.
Each time you press this button, the display shows the track number in the programmed order. After the last track in the programme, the display shows "End" and returns to the original display. If you check the order after you start playing, the display shows only the remaining track numbers.

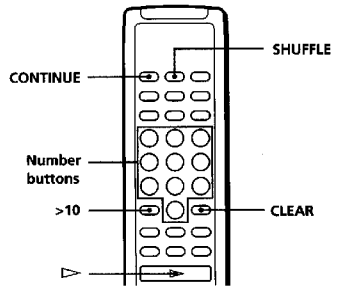
Changing the track order

You can change your programme before you start playing.

To	You need to
Erase a track	Press CHECK until the track you don't want appears in the display, then press CLEAR
Erase the last track in the programme	Press CLEAR. Each time you press the button, the last track will be cleared.
Add tracks to the end of the programme	Turn I◁◁ AMS ▷▷I until track number you want to add appears, then push I◁◁ AMS ▷▷I. When using the remote, press the number button of the tracks to be added.
Change the whole programme completely	Hold down CLEAR until "ALL CLr" appears in the display. Create a new programme following the programming procedure.

Playing Only Specific Tracks (Delete Play)

You can delete unwanted tracks and play only the remaining tracks.



1 Press SHUFFLE.
"SHUFFLE" appears in the display.

2 Press the number buttons of the tracks you want to delete.
The track numbers disappear from the music calendar after "OFF" appears for a while.
To delete a track numbered over 10, use the >10 button (see page 11).

If you've made a mistake
Press the number button of the track. "On" appears in the display and the track will be restored.

3 After you've deleted all the tracks you don't want, press CONTINUE.
"SHUFFLE" disappears from the display.

If you press PLAY MODE on the player instead of CONTINUE on the remote
The deleted tracks will be restored. Be sure to do this step with the remote.

4 Press ▷ to start Delete Play.

To cancel Delete Play
Press ■ in stop mode.

The player keeps the deleted tracks in memory even after the Delete Play ends
When you press ▷, you can play only the remaining tracks again.

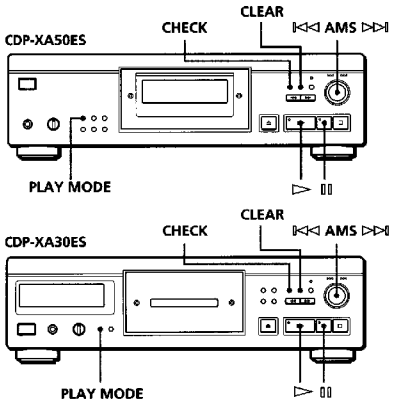
You can play the tracks in random order (Delete Shuffle Play)
Just skip Step 3 in the above procedure.

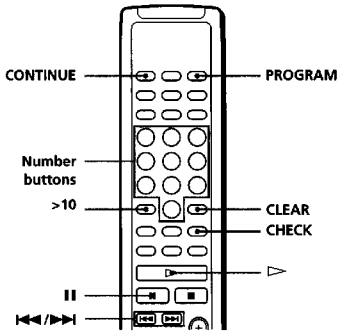
You can delete a track while playing
Press CLEAR while the track is being played. The player deletes the track and starts playing the next track.

You can store the deleted tracks of each disc
See "Storing Specific Tracks of a Disc" on page 24.

Recording Your Own Programme

You can record the programme you've created on a tape, DAT or MD. The programme can contain up to 24 tracks.
By inserting a pause during programming, you can divide the programme into two for recording on both sides of a tape.





1 Create your programme (for side A when recording on a tape) while checking the total playing time indicated in the display.
See "Creating Your Own Programme" on page 14.

2 When you record on both sides of the tape, press II to insert a pause.
The "P" indication appears in the display and the playing time is reset to "0.00."
When you record on one side of the tape or on a DAT or MD, skip this step and go to Step 4.

A pause is counted as one track
You can programme up to 23 tracks when you insert a pause.

3 Repeat Step 1 to create the programme for side B.

4 Start recording on the deck and then press ▷ on the player.
When you record on both sides of the tape, the player pauses at the end of the programme for side A.

5 When you record on side B, reverse the tape and press ▷ or II on the player to resume playing.

To check and change your programme
See pages 15 and 16.
"SIDE-A" appears while checking the programme for side A and "SIDE-B" while checking the programme for side B.

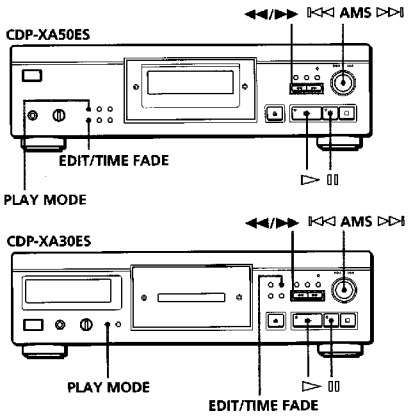
You can automatically insert a blank space of 3 seconds between each track
Use the Auto Space function (see page 21).

Recording a CD by Specifying Tape Length (Time Edit/Just Edit)

You can have the player create a programme that will fit the length of the tape. Select one of the following options:

- Time Edit: automatically creates a programme, keeping the original order of the disc.
- Just Edit: automatically arranges the track order to fit the tape length.

The programme can contain up to 24 tracks (a pause inserted between tracks is counted as one track).
Note that tracks whose numbers are over 24 cannot be programmed.



1 Press EDIT/TIME FADE before you start playing as follows:

- To select Time Edit, press the button once. "EDIT" appears and "SIDE-A" flashes in the display.
- To select Just Edit, press the button twice. "(JUST EDIT)" appears and "SIDE-A" flashes in the display.

2 Press ◀◀ or ▶▶ to specify the tape length.
Each time you press these buttons, the display changes as shown below, with the tape length of one side following each indication.

HALF ↔ C-46 ↔ C-54 ↔ C-60 ↔ C-74 ↔ C-90 ↔
(23.00) (27.00) (30.00) (37.00) (45.00)

When you select "HALF"
The player sets the programme of each side to a half of the total playing time of the disc. Note that you cannot select "HALF" when the disc has more than 24 tracks.

3 Press EDIT/TIME FADE to have the player create the programme.
The display shows the tracks to be recorded. "SIDE-B" flashes in the display.

4 When you record on both sides of the tape, press EDIT/TIME FADE again.
The player inserts a pause, then creates the programme for side B. The display shows the programmed tracks.
When you record on one side of the tape or on a DAT or MD, skip this step.

5 Start recording on the deck and then press ▷ on the player.
When you record on both sides of the tape, the player pauses at the end of the programme for side A.

6 When you record on side B, reverse the tape and press ▷ or II on the player to resume playing.

To cancel Time Edit/Just Edit
Press PLAY MODE repeatedly until "SHUFFLE," "PROGRAM" and "CUSTOM INDEX" disappear from the display (or press CONTINUE on the remote).

You can programme the tracks you want in advance
Select the tracks before doing the above procedure. The player creates a programme from the remaining tracks. In this case, you cannot select "HALF" to specify the tape length.

You can freely specify the tape length
Set the tape length using I◀◀ AMS ▷▷I.
Example: When the tape length of one side is 30 minutes and 15 seconds
1 To set the minutes, turn I◀◀ AMS ▷▷I until "30" appears in the display, then push I◀◀ AMS ▷▷I.
2 To set the seconds, turn I◀◀ AMS ▷▷I until "15" appears in the display, then push I◀◀ AMS ▷▷I.

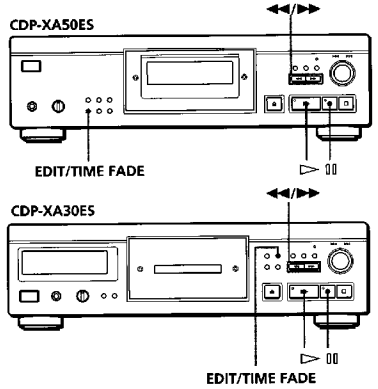
When tracks, which aren't numerically consecutive on the disc, are programmed consecutively (i.e. 1, 3, 5 etc.)
A one-second access time blank is added between the tracks.

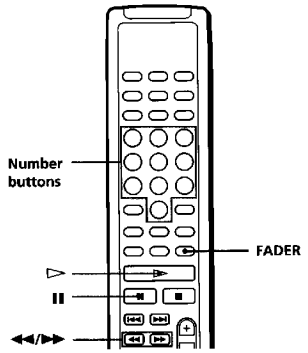
You can automatically insert a blank space of 3 seconds between each track
Use the Auto Space function (see page 21).

You can check and change the programme
See pages 15 and 16.

Fading In or Out

You can manually fade in or out to prevent tracks from starting or ending abruptly.
Note that you cannot use this effect when you use the DIGITAL OUT connector.





To	Press FADER
Start play fading in	During pause. "FADE" flashes and play fades in.
End play fading out	When you want to start fading out. "FADE" flashes. The play fades out and the player pauses.

Changing the fading time

You can change the fading time from 2 to 10 seconds before fading in or out. If you don't change it, fading lasts for 5 seconds.

1 Press FADER before you start playing.
"5 SEC" appears and "FADE" flashes in the display.

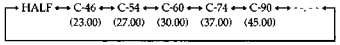
2 Press the number button to specify the fading time.
You can also specify the fading time by pressing the ◀◀/▶▶ buttons until the display shows the time you want.

Fading out at the specified time (Time Fade)

You can have the player fade out automatically by specifying the playing time. Once you set the Time Fade, it works twice, that is, the play fades out at the end of both sides of a tape.

1 Press EDIT/TIME FADE three times before you start playing.
"(TIME FADE)" and "SIDE-A" appear in the display.

2 Press ◀◀ or ▶▶ to specify the playing time.
Each time you press these buttons, the display changes as shown below, with the playing time of one side following each indication.



When you select "HALF"
The player sets the playing time to a half of the total playing time.

3 Press ▷ to start playing.
At the specified time the play fades out with "FADE" flashing in the display and the player pauses. "SIDE-B" appears in the display.

4 To record on side B, reverse the tape and press ▷ or ⏸ on the player to resume playing.
Again, the play fades out at the specified time.

To cancel Time Fade
Press EDIT/TIME FADE.

You can freely specify the playing time
See "You can freely specify the tape length" on page 19.

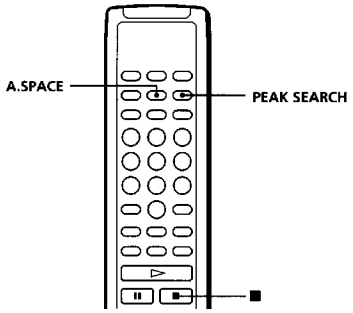
You can change discs during Time Fade
If the play ends before the specified fade-out time, (for example, when you record CD-singles on a tape) change the disc. The specified fade-out time is counted only during playing.

You can fade in to resume playing in Step 4
After you reverse the tape, press FADER.

Note
If you press ◀◀ or ▶▶ during Time Fade Play, Time Fade will be cancelled.

Useful Tips for Recording

Using these functions makes recording CDs more convenient.



Adjusting the Recording Level (Peak Search)

The player locates the highest level among the tracks to be recorded to let you adjust the recording level before you start recording.

1 Before you start playing, press PEAK SEARCH.
"PEAK" flashes in the display and the player repeats the portion of the highest level.

2 Adjust the recording level on the deck.

3 Press ■ on the player to stop Peak Search.
"PEAK" disappears from the display.

Note
The portion with the highest level may differ every time you try the adjustment on the same disc. The difference is, however, so slight that you won't find any problem in adjusting the recording level precisely.

Locating each track on a tape using the AMS function (Auto Space)

The Auto Space function inserts a blank space of 3 seconds between each track while playing, and enables you to locate each track using the AMS function of the deck.

Before you start playing, press A.SPACE.
"AUTO SPACE" appears in the display.

To cancel Auto Space
Press A.SPACE until "AUTO SPACE" disappears from the display.

Note
If you use the Auto Space function when recording, for example, a medley or symphony, the sound may be interrupted where the track number changes. It happens when the track numbers are assigned in the middle of the piece.

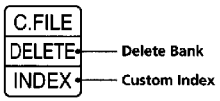
What You Can Do With the Custom Files

The player can store 2 types of information called "Custom Files" for each disc. Once you have stored Custom Files for a disc, the player automatically recalls what you have stored whenever you insert the disc. Note that Custom Files will be erased if you don't use the player for about 1 month.

You can store this information:

When you use	You can
Custom Index (page 22)	Index the disc at up to 8 points (for a disc with 32 tracks or less) or 5 points (for a disc with over 32 tracks)
Delete Bank (page 24)	Delete unwanted tracks and store only the tracks you want

The Custom File indication lights up when you store the corresponding information.



When you store a Custom File for a disc, the player remembers how you played that disc last time even if you removed the disc from the player (last mode memory). When you insert the same disc again, therefore, the player plays in the same play mode. The player also remembers the duration of fade in/out time if you've changed the time.
Note that when you press ▷ to close the disc tray and start playing, the player plays in the play mode currently selected instead of the stored one.

Where are Custom Files stored?

Custom Files are stored not on the disc but in the player's memory. This means you cannot use Custom Files when you play the disc on other players.

How many discs can you file?

You can file up to 224 discs in the Custom File.
The player counts a disc as one even when you store the Custom Index and Delete Bank at the same time.

You can check how many discs you can file

1 Remove the disc from the player.
2 Press ⏏ OPEN/CLOSE to close the disc tray.
3 Press TIME while the music calendar disappears from the display.
The number of the Custom Files you can file appears.

If "FULL" appears in the display

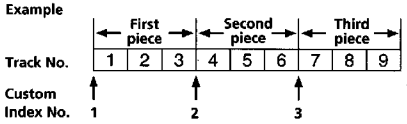
If the memory for Custom Files becomes full, the player displays "FULL" when you press FILE to store the information and you cannot store any more disc information. If necessary, erase any unwanted Custom Files (see pages 24 and 25).

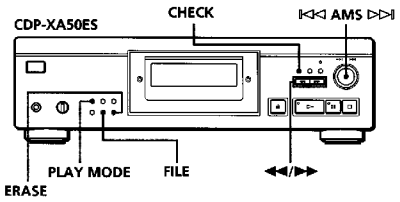
To erase all Custom Files of all discs
While holding down ERASE and FILE, press POWER to turn on the player. "FILE CLr" appears in the display and all the custom files will be erased.

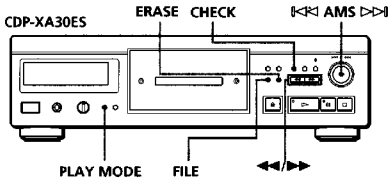
Indexing a Disc (Custom Index)

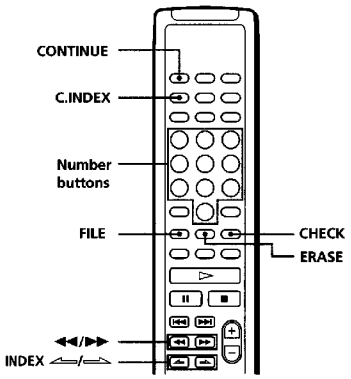
You can index a disc at up to 8 points (for a disc with 32 tracks or less) or 5 point (for a disc with over 32 tracks) so that you can easily locate a desired point. This might be useful when you play discs of symphonies or concertos that divide one piece into several tracks (see the example below).

Example









1 Insert the disc.

2 Press PLAY MODE repeatedly until "CUSTOM INDEX" appears in the display.
When using the remote, press C.INDEX.
The music calendar disappears.

3 Press FILE at the point you want to index.
The Custom Index number flashes in the display.
The player repeats the portion for 3 seconds from the point to be indexed.

4 Press ◀◀ or ▶▶ to adjust the point so that the player can repeat from the exact point you want to index.
Pressing these buttons 7 times moves the point by about 1 second ahead or behind.

If you don't want to index at the point
Press CLEAR and search another point to be indexed.

5 Press FILE again to store the Custom Index.
"INDEX" in the Custom File indication lights up in the display.

6 To mark more Custom Indexes, repeat Steps 3 to 5.

When you've already decided where to index
You can directly mark an index without adjusting the point. When you find the point to be indexed, first press II to pause playing and press FILE to mark an index.

Playing from an indexed point (Custom Index Play)

1 Press PLAY MODE repeatedly until "CUSTOM INDEX" appears in the display.
When using the remote, press C.INDEX.

2 Locate the Custom Index you want as follows:

To locate	Press
The next Custom Index	INDEX ⇨
The current Custom Index	INDEX ⇦
A specific Custom Index directly	Number button of the Custom Index

Playback starts from the selected Custom Index to the end of the disc.

To cancel the Custom Index Play
Press PLAY MODE twice (or CONTINUE on the remote).

Notes
- You cannot use the Index Search function (see page 12).
- Use INDEX ⇦/⇨ buttons to locate the next or the current Custom Indexes, instead of ⏮/⏭ buttons on the remote.

Playing from one index to the next one (Custom Index Single Play)
1 Press PLAY MODE repeatedly until "CUSTOM INDEX (1)" appears in the display.
When using the remote, press C.INDEX.
2 Press the number button of the Custom Index you want on the remote.
Playback starts from the selected Custom Index and stops at the beginning of the next index.
To cancel the Custom Index Single Play, press PLAY MODE once (or CONTINUE on the remote).

You can play the portion between two indexes repeatedly
Press REPEAT.

Erasing the Custom Index

1 Insert the disc.

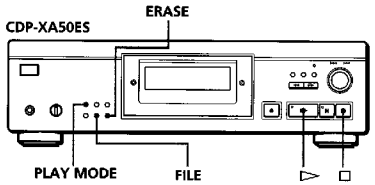
2 Press PLAY MODE repeatedly until "CUSTOM INDEX" appears in the display.
When using the remote, press C.INDEX.

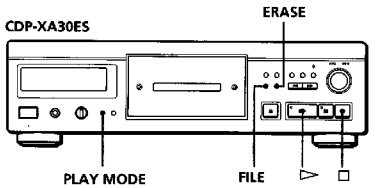
3 Press CHECK repeatedly until the Custom Index number you want to erase flashes.

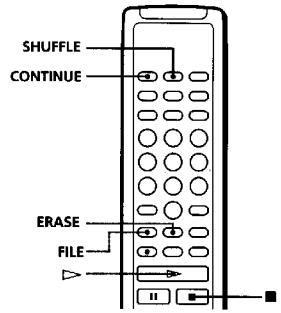
4 Press ERASE while the number is flashing to erase the Custom Index.
The succeeding Custom Index numbers decrease by one.

Storing Specific Tracks of a Disc (Delete Bank)

You can delete unwanted tracks and store only the tracks you want. You can start playing your favourite tracks without deleting tracks each time.







1 Insert the disc.

2 Delete tracks you don't want.
Follow Steps 1 to 3 in "Playing Only Specific Tracks" on page 16.

3 Press FILE to store the remaining tracks.
"DELETE" in the Custom File indication lights up in the display.

Playing using the Delete Bank

1 Press PLAY MODE repeatedly until "SHUFFLE," "PROGRAM" and "CUSTOM INDEX" disappear from the display.
When using the remote, press CONTINUE.
The Delete Bank is recalled and the selected track numbers appear on the music calendar.

2 Press ▷ to start playing.

To cancel playing using the Delete Bank
Press □.

To start playing using the Delete Bank again
While "PROGRAM" or "CUSTOM INDEX" appears in the display, press PLAY MODE repeatedly until these indications disappear from the display or until "SHUFFLE" appears in the display. The Delete Bank is recalled and you can start playing by pressing ▷.

You can play in a random order using the Delete Bank
In Step 1, press PLAY MODE repeatedly until "SHUFFLE" appears in the display (or press SHUFFLE on the remote).

Erasing the Delete Bank

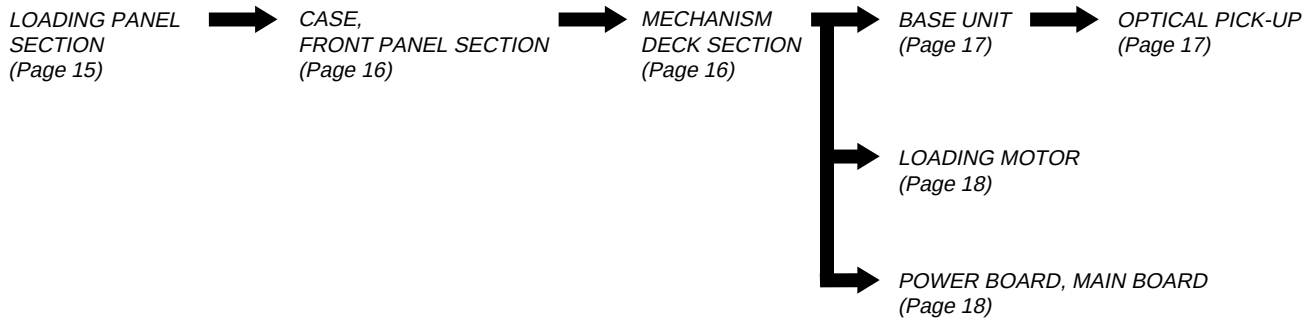
1 Insert the disc.

2 Press PLAY MODE repeatedly until "PROGRAM" and "CUSTOM INDEX" disappear from the display.
When using the remote, press CONTINUE or SHUFFLE.
The display shows the stored Delete Bank.

3 Press ERASE to erase the Delete Bank.
"DELETE" in the Custom File indication disappears.

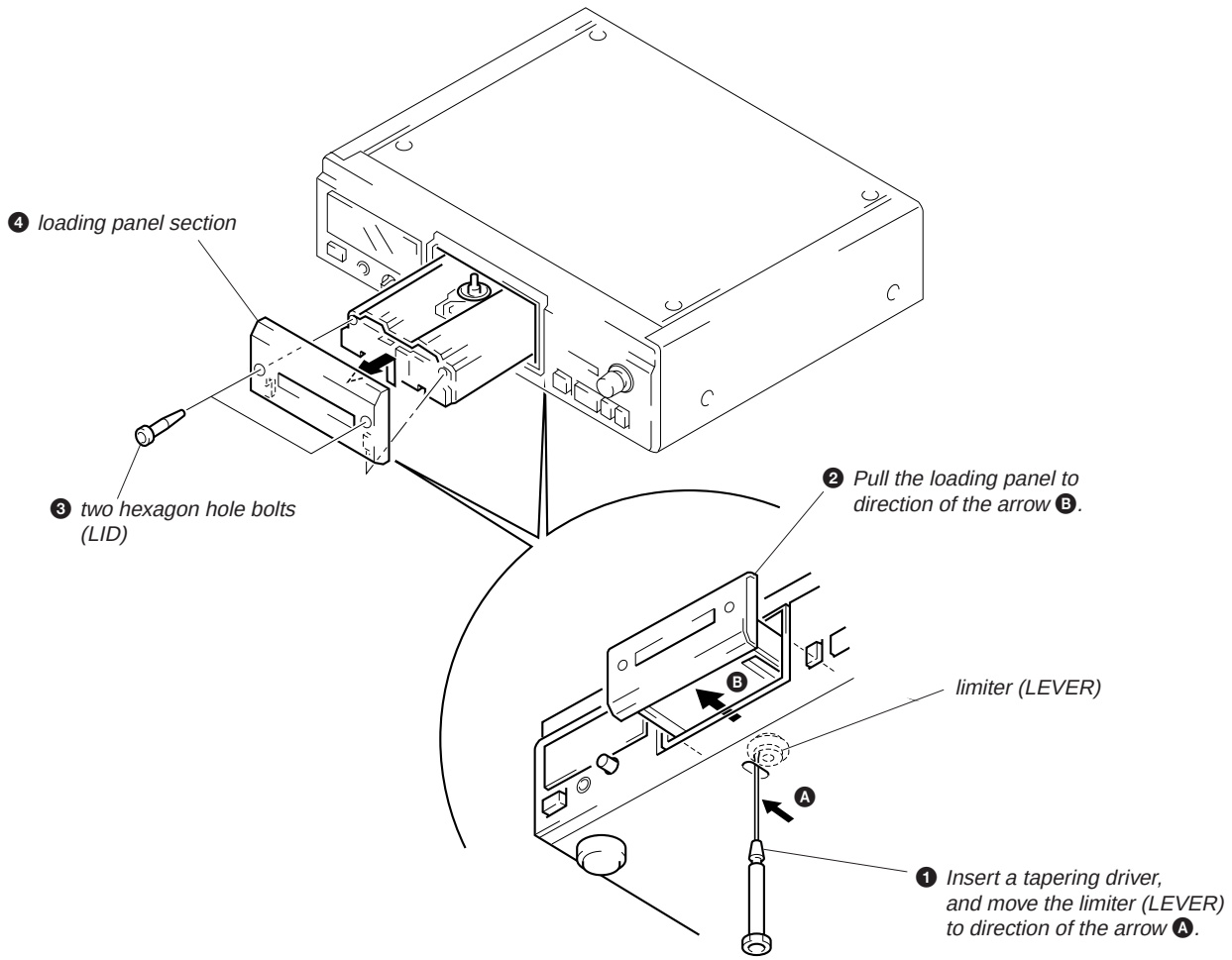
SECTION 3
DISASSEMBLY

• This set can be disassembled in the order shown below.

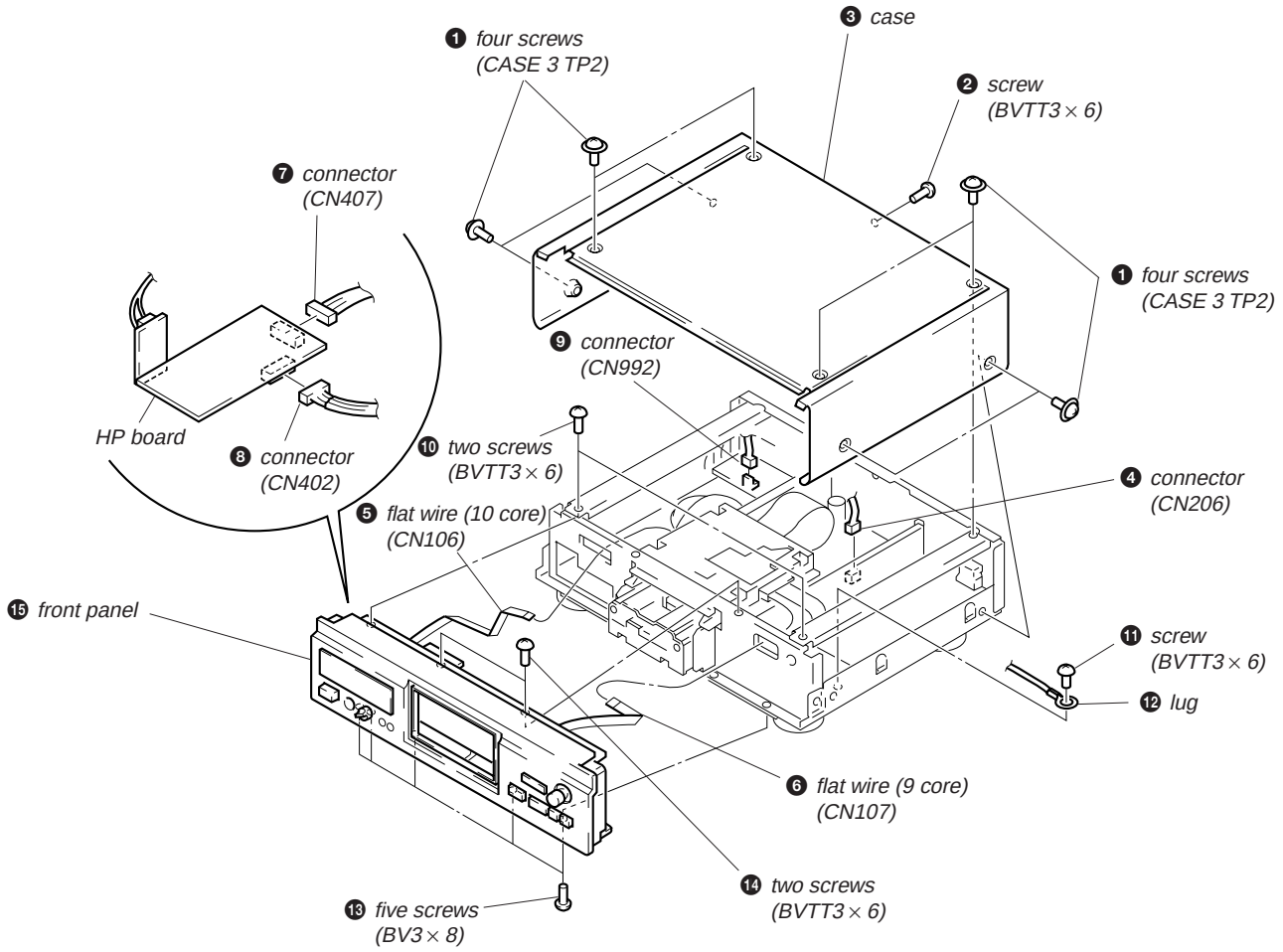

LOADING PANEL SECTION (Page 15)
CASE, FRONT PANEL SECTION (Page 16)
MECHANISM DECK SECTION (Page 16)
BASE UNIT (Page 17)
OPTICAL PICK-UP (Page 17)
LOADING MOTOR (Page 18)
POWER BOARD, MAIN BOARD (Page 18)

Note: Follow the disassembly procedure in the numerical order given.

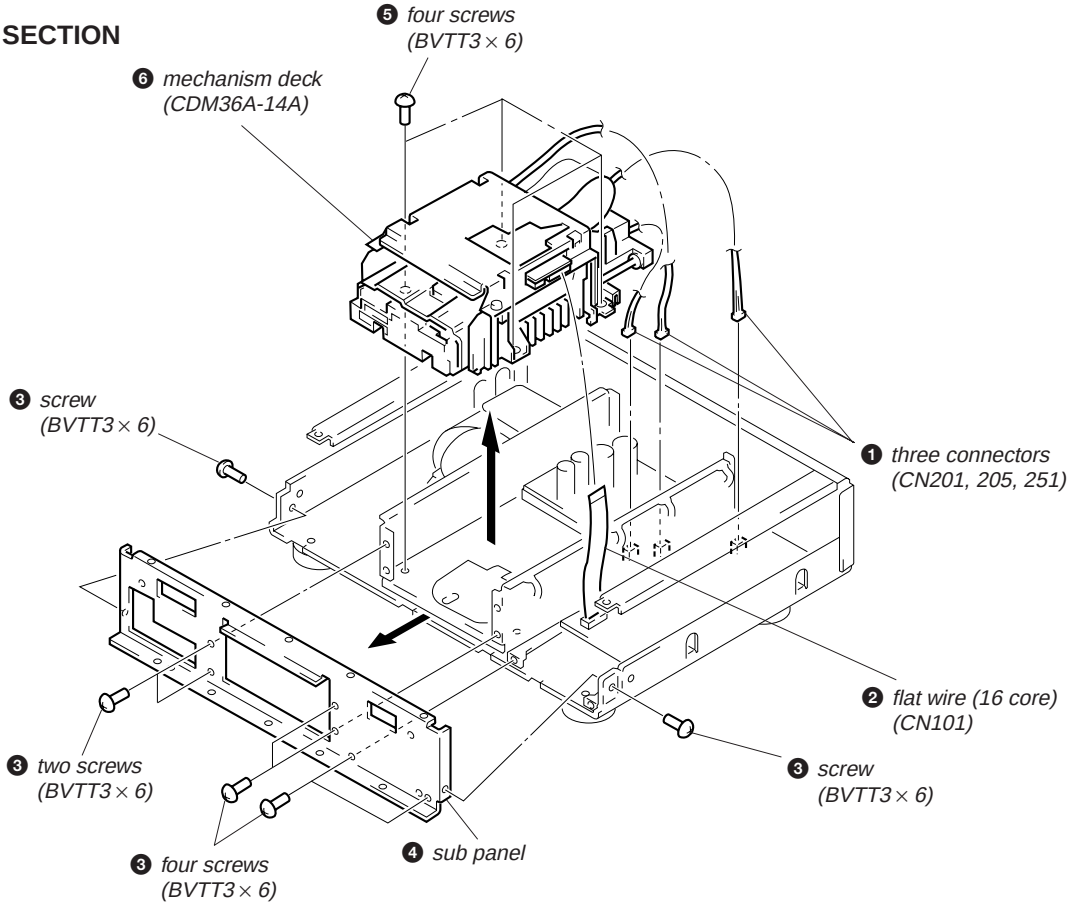
LOADING PANEL SECTION


❹ loading panel section
❸ two hexagon hole bolts (LID)
❷ Pull the loading panel to direction of the arrow Ⓑ.
limiter (LEVER)
Ⓑ
Ⓐ
❶ Insert a tapering driver, and move the limiter (LEVER) to direction of the arrow Ⓐ.

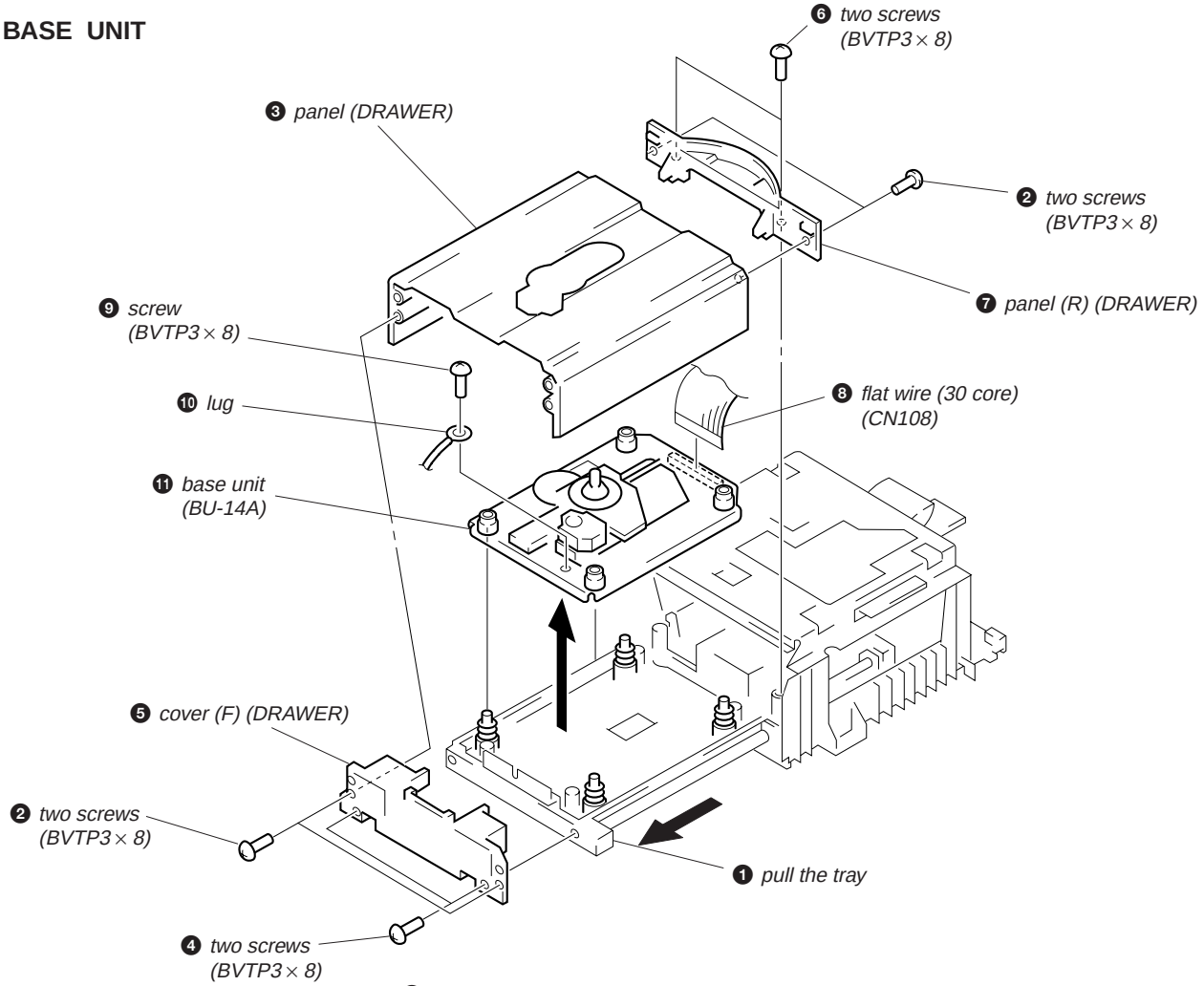
CASE, FRONT PANEL SECTION


❸ case
❶ four screws (CASE 3 TP2)
❷ screw (BVTT3 × 6)
❼ connector (CN407)
❶ four screws (CASE 3 TP2)
❾ connector (CN992)
HP board
❽ connector (CN402)
❿ two screws (BVTT3 × 6)
❹ connector (CN206)
❺ flat wire (10 core) (CN106)
⓯ front panel
⓫ screw (BVTT3 × 6)
⓬ lug
❻ flat wire (9 core) (CN107)
⓭ five screws (BV3 × 8)
⓮ two screws (BVTT3 × 6)

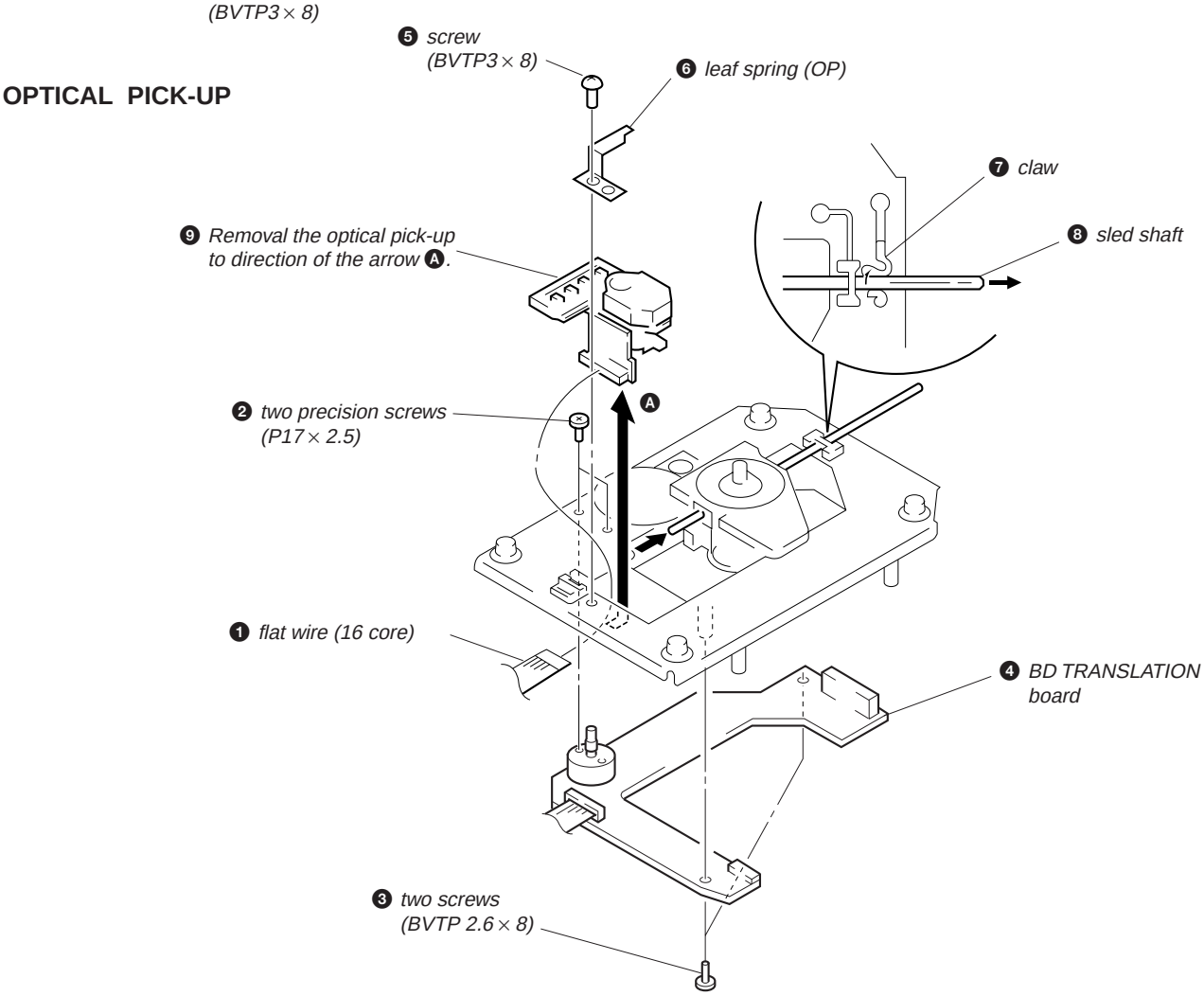
MECHANISM DECK SECTION


❺ four screws (BVTT3 × 6)
❻ mechanism deck (CDM36A-14A)
❸ screw (BVTT3 × 6)
❶ three connectors (CN201, 205, 251)
❷ flat wire (16 core) (CN101)
❸ two screws (BVTT3 × 6)
❸ screw (BVTT3 × 6)
❹ sub panel
❸ four screws (BVTT3 × 6)

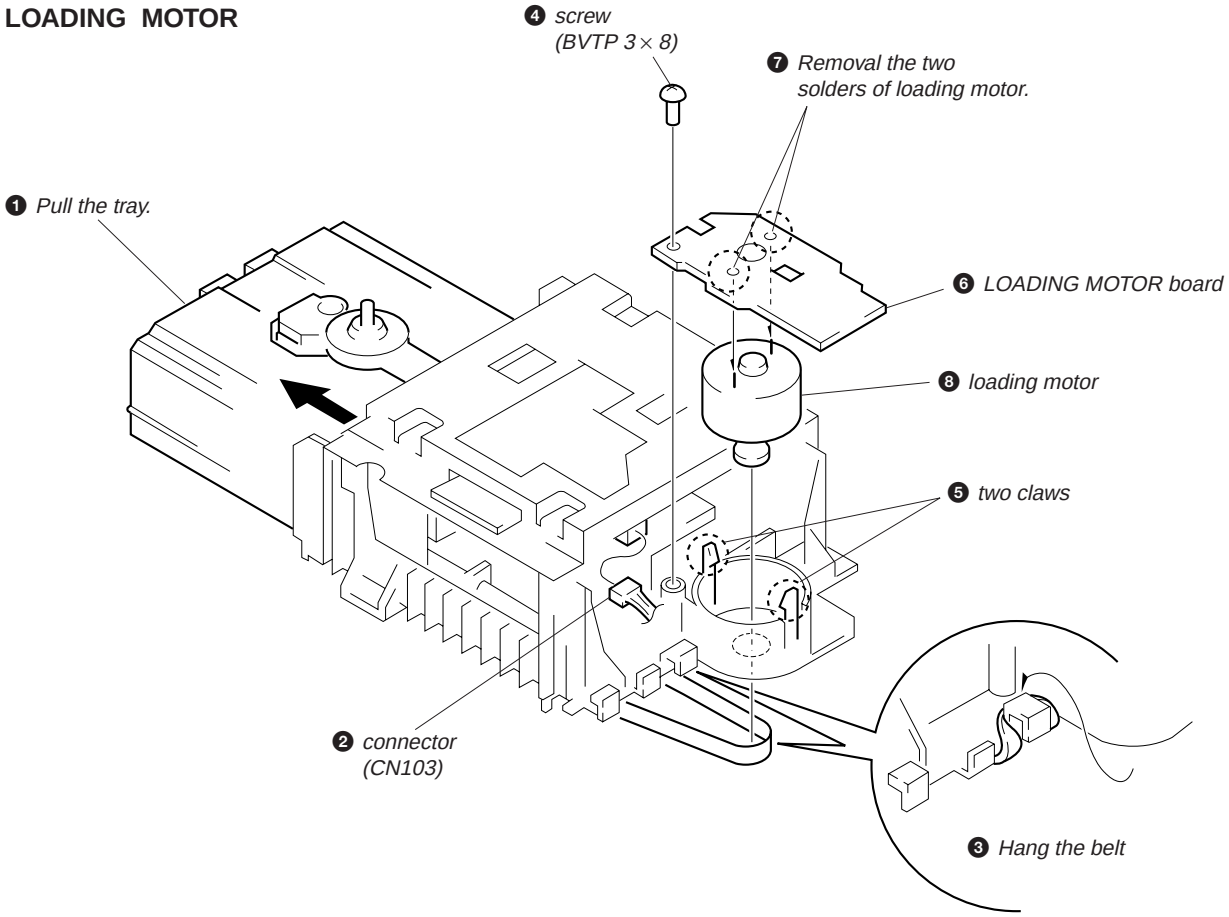
BASE UNIT


❻ two screws (BVTP3 × 8)
❸ panel (DRAWER)
❷ two screws (BVTP3 × 8)
❼ panel (R) (DRAWER)
❾ screw (BVTP3 × 8)
❽ flat wire (30 core) (CN108)
❿ lug
⓫ base unit (BU-14A)
❺ cover (F) (DRAWER)
❷ two screws (BVTP3 × 8)
❶ pull the tray
❹ two screws (BVTP3 × 8)

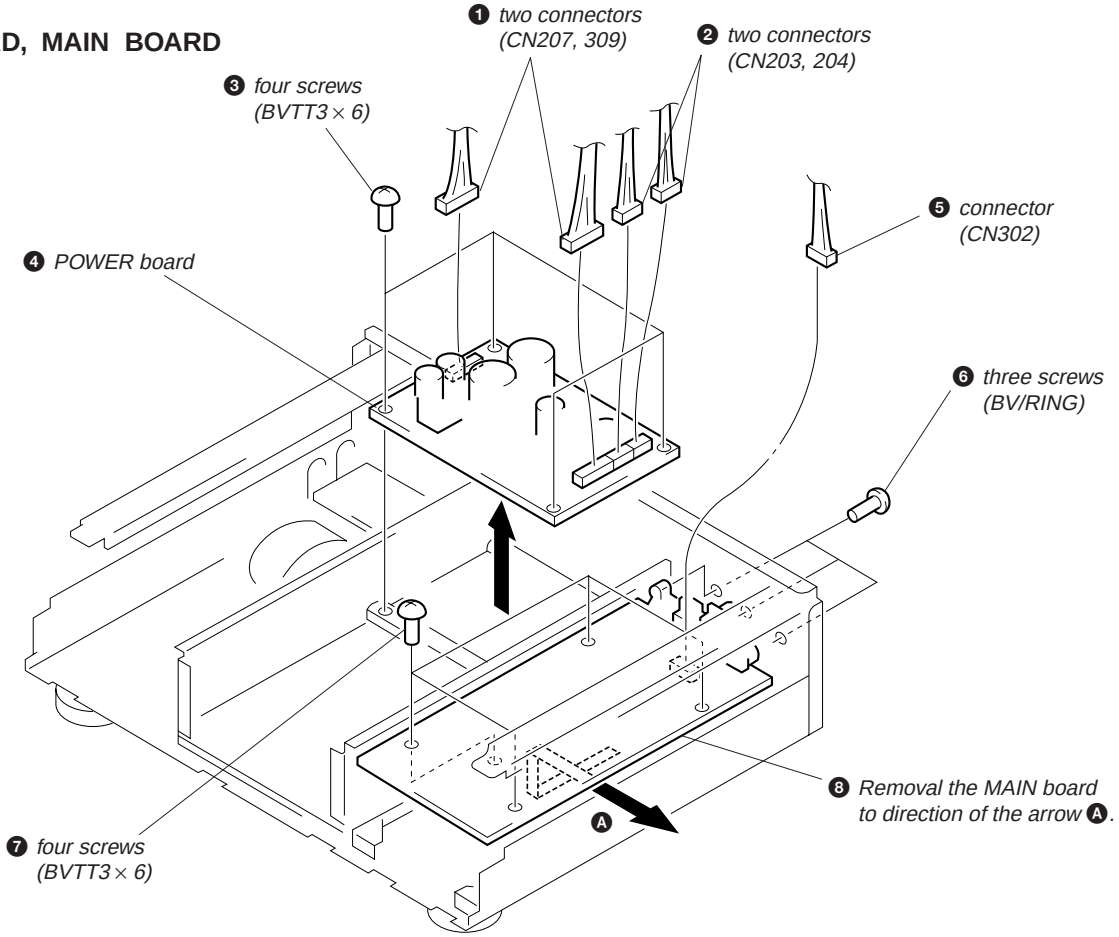
OPTICAL PICK-UP


❺ screw (BVTP3 × 8)
❻ leaf spring (OP)
❼ claw
❽ sled shaft
❾ Removal the optical pick-up to direction of the arrow Ⓐ.
Ⓐ
❷ two precision screws (P17 × 2.5)
❶ flat wire (16 core)
❹ BD TRANSLATION board
❸ two screws (BVTP 2.6 × 8)

LOADING MOTOR



POWER BOARD, MAIN BOARD



SECTION 4
TEST MODE

4-1. AF MODE

Connect the TP19 (AFADJ) on the BD board to the ground and turn on the power supply.
The AF mode is then activated and the following check can be made.

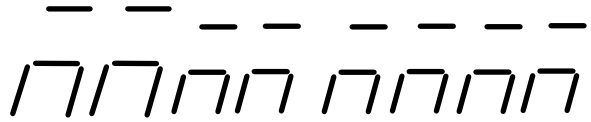
4-1-1. Fluorescent Indicator Tube Check

After confirming display of all on, keep pressing the following button, and the following display is attained.

■ (STOP) button

(Display: 01)

► (PLAY) button



(Display: 02)

❚❚ (PAUSE) button

(Display: 03)

►► button

SHUFFLE REPEAT A-
AUTO SPACE EDIT

STEP
–

(Display: 04)

◄◄ button

1 B (JUST)
PROGRAM

INDEX PEAK

(Display: 05)

CHECK button

1		3		5
	7		9	
11		13		15

(Display: 06)

CLEAR button

2 4
6 8 10
12 14 ►

(Display: 07)

Keep pressing the ⏏OPEN/CLOSE button, and all on display is attained again.

4-1-2. Key Check

All buttons are assigned with numbers respectively, and when each button is pressed, it is counted and its number is displayed. Up to "16" can be counted.
A button pressed once is not further counted but the number is displayed. (Table 4-1)

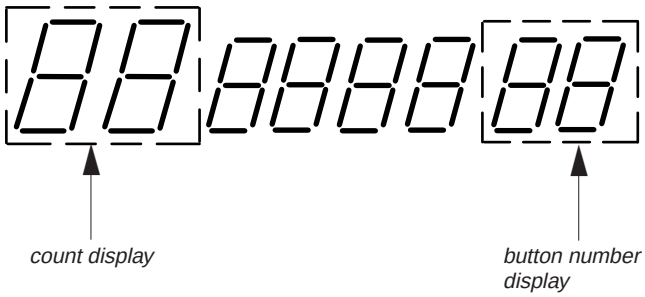


Table 4-1.

Button	Display	Button	Display
ERASE	00	❚❚	03
EDIT/ TIME FADE	12	►►	04
FILE	13	◄◄	05
FILTER	20	CHECK	06
ENTER	23	CLEAR	07
⏏ OPEN/CLOSE	all light up	P MODE	09
■	01	REPEAT	10
►	02	TIME	11

4-1-3. Remote Commander Check

Press the ► button on remote commander, and " ° " ► on the set turn on. Nothing will be displayed if pressing another button.

4-2. ADJ MODE

Connect the TP18 (ADJ) on the BD board to the ground and turn on the power supply. The ADJ mode is then activated and the following operation is executed.

- There is no problem even if Guarded Frame Sync is low value continuously during playing.
- Do not perform high speed search during an access.The gain of focus servo and spindle servo does not lower during playing.
- Manual operation and measurement of the servo system are possible. (For detailed operating method, see Table 4-2. in ADJ Mode.)

4-2-1. Button Operation Table in ADJ Mode

After all music numbers are displayed, press the TIME button, and the jitter display mode is then set. The button functions are as listed below.

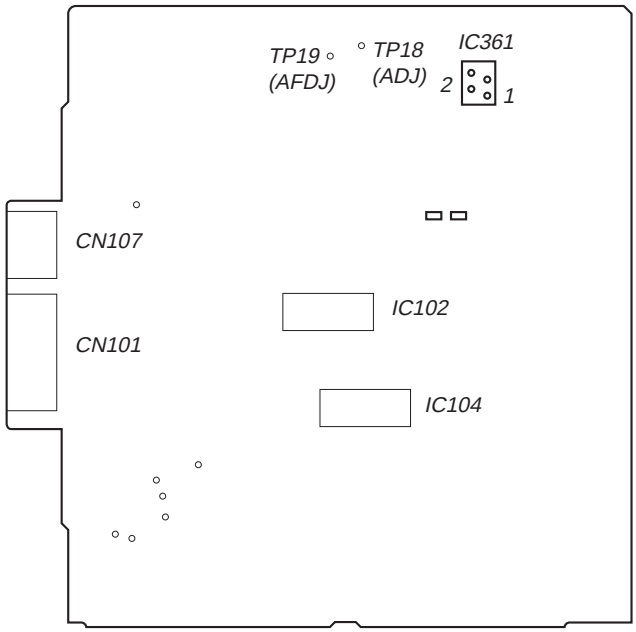
Button Functions (Operate with remote commander.)

Table 4-2.

Button No.	Test Mode
3	Tracking servo off
8	Tracking servo on
11	S-curve measuring mode
12	All servo off
13	Top turnblack display
14	Botton turnblack display
15	Center display
16	Optimum point display
17	Optimum jitter display
18	TE traverse display
19	VC, FE and RF display
20	Autogain display (Focus, tracking and sled)

* For button numbers 3, 8, 11, and 12, use them only when an oscilloscope is connected.

Connecting Location:
[BD BOARD] (SIDE B)



4-3. CLV-S MODE

The spindle servo can be operated for play in the CLV-S mode by connecting TP18 (ADJ) and after turning on the power supply.

4-4. RELEASE THE TEST MODE

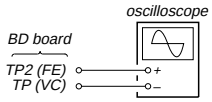
Disconnect the lead wire of test point connected in first step.

SECTION 5
ELECTRICAL ADJUSTMENTS

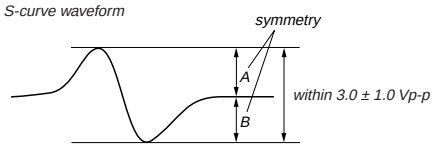
Notes:
1. CD block basically constructed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (Part No.: 3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than 10 MΩ impedance.
4. Clean an object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

S-Curve Check

Connection:



Procedure:
1. Connect the oscilloscope to TP2 (FE) and TP (VC) on BD board.
2. Connect the TP3 (FEI: IC101 pin ㉙) and TP (VC) with lead wire.
3. Turned power switch on.
4. Put disc (YEDS-18) in and turned power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
5. Confirm that the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 3.0 ± 1.0 Vp-p.

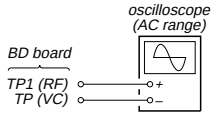


6. After check, remove the lead wire connected in step 2.

Note:
- Try to measure several times to make sure that the ratio of A : B or B : A is more than 10 : 7.
- Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check

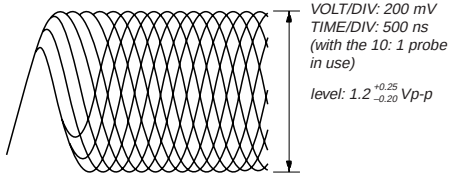
Connection:



Procedure:
1. Connect the oscilloscope to TP1 (RF) and TP (VC) on BD board.
2. Turned power switch on. (stop mode)
3. Put disc (YEDS-18) in and press the ► button.
4. Confirm that the oscilloscope waveform is clear and check RF signal level is correct or not.

Note: Clear RF signal waveform means that the shape "◇" can be clearly distinguished at the center of the waveform.

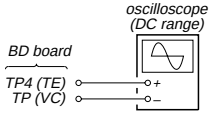
RF signal waveform



When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensitivity.

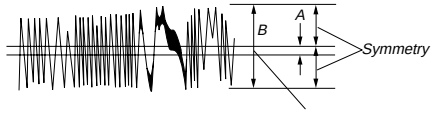
E-F Balance (Traverse) Check

Connection:



Procedure:
1. Connect the TP18 (ADJ) to ground and TP5 (TEI: IC101 pin ㉗) to TP (VC)with lead wire.
2. Connect the oscilloscope to TP4 (TE) and TP (VC) on BD board.
3. Turned power switch on.
4. Put disc (YEDS-18) in and press the ► button.
5. Confirm that the oscilloscope waveform is symmetrical on the top and bottom in relation to A Vdc, and check this level.

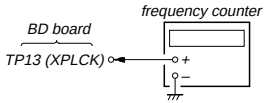
Traverse waveform



6. After check, remove the lead wire connected in step 1.

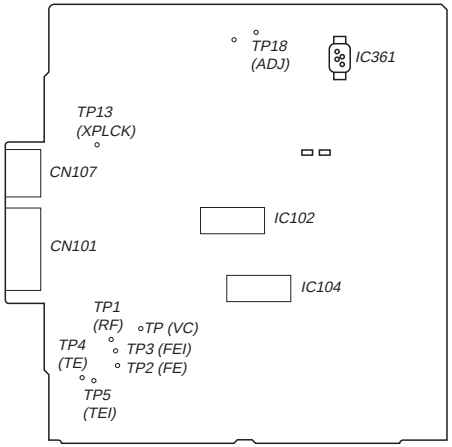
RF PLL Free-run Frequency Check

Connection:



Procedure:
1. Connect the frequency counter to TP13 (XPLCK).
2. Turned power switch on.
3. Put disc (YEDS-18) in and press the ► button.
4. Confirm that the reading on frequency counter is 4.3218 MHz.

Connecting Location:
[BD BOARD] (SIDE B)



SECTION 6
DIAGRAMS

6-1. IC PIN FUNCTION DISCRIPTION

• BD BOARD IC101 CXD2545Q
(DIGITAL SIGNAL PROCESSOR, FOCUS/TRACKING/SLED SERVO, EFM COMPARATOR)

Pin No.	Pin Name	I/O	Function
1	SRON	O	Sled servo drive PWM signal output terminal Not used (open)
2	SRDR	O	Sled servo drive PWM signal (–) output to the BA6297AFP (IC102)
3	SFON	O	Sled servo drive PWM signal output terminal Not used (open)
4	TFDR	O	Tracking servo drive PWM signal (–) output to the BA6297AFP (IC102)
5	TRON	O	Tracking servo drive PWM signal output terminal Not used (open)
6	TRDR	O	Tracking servo drive PWM signal (+) output to the BA6297AFP (IC102)
7	TFON	O	Tracking servo drive PWM signal output terminal Not used (open)
8	FFDR	O	Focus servo drive PWM signal (+) output to the BA6297AFP (IC102)
9	FRON	O	Focus servo drive PWM signal output terminal Not used (open)
10	FRDR	O	Focus servo drive PWM signal (–) output to the BA6297AFP (IC102)
11	FFON	O	Focus servo drive PWM signal output terminal Not used (open)
12	VCOO	O	Oscillator circuit output terminal for analog PLL of the playback EFM Not used (open)
13	VCOI	I	Oscillator circuit input terminal for analog PLL of the playback EFM Not used (fixed at "L")
14	TEST	I	Input terminal for the test (fixed at "L")
15	DVSS	—	Ground terminal (digital system)
16	TES2	I	Input terminal for the test (fixed at "L")
17	TES3	I	Input terminal for the test (fixed at "L")
18	PDO	O	Charge-pump output terminal for analog PLL of the playback EFM Not used (open)
19	VPCO	O	PLL charge-pump output terminal for the variable pitch Not used (open)
20	VCKI	I	Clock signal input from external VCO for the variable pitch Not used (fixed at "L")
21	AVD2	—	Power supply terminal (+5V) (analog system)
22	IGEN	I	Power supply terminal (+5V) (for operational amplifier)
23	AVS2	—	Ground terminal (analog system)
24	ADII	I	Input terminal for the A/D converter Not used (open)
25	ADIO	O	Output terminal of the operational amplifier Not used (open)
26	RFDC	I	RF signal (DC level) input terminal for the digital servo process
27	TE	I	Tracking error signal input from the RF amplifier in optical pick-up
28	SE	I	Sled error signal input from the RF amplifier in optical pick-up
29	FE	I	Focus error signal input from the RF amplifier in optical pick-up
30	VC	I	Middle point voltage (+2.5V) input from the RF amplifier in optical pick-up
31	FILO	O	Filter output terminal for master clock of the playback master PLL
32	FILI	I	Filter input terminal for master clock of the playback master PLL
33	PCO	O	Phase comparison output terminal for master clock of the playback EFM master PLL
34	CLTV	I	Internal VCO control voltage input of the playback master PLL
35	AVS1	—	Ground terminal (analog system)
36	RFAC	I	RF signal (AC level) input terminal for the EFM demodulator
37	BIAS	I	Constant current input terminal of the playback EFM asymmetry circuit
38	ASYI	I	Playback EFM asymmetry comparator voltage input terminal
39	ASYO	O	Playback EFM full-swing output terminal
40	AVD1	—	Power supply terminal (+5V) (analog system)
41	DVDD	—	Power supply terminal (+5V) (digital system)
42	ASYE	I	Playback EFM asymmetry circuit on/off selection input terminal (fixed at "H")
43	PSSL	I	Audio data output mode selection input terminal (fixed at "L")

Pin No.	Pin Name	I/O	Function
44	WDCK	O	Word clock signal (88.2 kHz) output terminal Not used (open)
45	LRCK	O	L/R sampling clock signal (44.1 kHz) output to the CXD8595Q (IC301)
46	DATA	O	DA16 output when PSSL="H", 48-bit slot serial data output when PSSL="L" (PSSL (pin ㊸)=fixed at "L") Serial data output to the CXD8595Q (IC301)
47	BCLK	O	DA15 output when PSSL="H", 48-bit slot bit clock signal output when PSSL="L" (PSSL (pin ㊸)=fixed at "L") Bit clock signal (2.8224 MHz) output to the CXD8595Q (IC301)
48	64 DATA	O	DA14 output when PSSL="H", 64-bit slot serial data output when PSSL="L" (PSSL (pin ㊸)=fixed at "L") Not used (open)
49	64 BCLK	O	DA13 output when PSSL="H", 64-bit slot bit clock signal output when PSSL="L" (PSSL (pin ㊸)=fixed at "L") Not used (open)
50	64 LRCK	O	DA12 output when PSSL="H", 64-bit slot L/R sampling clock signal output when PSSL="L" (PSSL (pin ㊸)=fixed at "L") Not used (open)
51	GTOP	O	DA11 output when PSSL="H", GTOP signal output when PSSL="L" (PSSL (pin ㊸)=fixed at "L") Not used (open)
52	XUGF	O	DA10 output when PSSL="H", XUGF signal output when PSSL="L" (PSSL (pin ㊸)=fixed at "L") Not used (open)
53	XPLCK	O	DA09 output when PSSL="H", XPLCK signal output when PSSL="L" (PSSL (pin ㊸)=fixed at "L") Not used (open)
54	GFS	O	DA08 output when PSSL="H", GFS (guard frame sync) signal output when PSSL="L" (PSSL (pin ㊸)=fixed at "L") Not used (open)
55	RFCK	O	DA07 output when PSSL="H", RFCK (read frame clock) signal output when PSSL="L" (PSSL (pin ㊸)=fixed at "L") Not used (open)
56	C2PO	O	DA06 output when PSSL="H", C2PO signal output when PSSL="L" (PSSL (pin ㊸)=fixed at "L") Not used (open)
57	XRAOF	O	DA05 output when PSSL="H", XRAOF (RAM over flow) signal output when PSSL="L" (PSSL (pin ㊸)=fixed at "L") Not used (open)
58	MNT3	O	DA04 output when PSSL="H", MNT3 (monitor 3) signal output when PSSL="L" (PSSL (pin ㊸)=fixed at "L") Not used (open)
59	MNT2	O	DA03 output when PSSL="H", MNT2 (monitor 2) signal output when PSSL="L" (PSSL (pin ㊸)=fixed at "L") Not used (open)
60	MNT1	O	DA02 output when PSSL="H", MNT1 (monitor 1) signal output when PSSL="L" (PSSL (pin ㊸)=fixed at "L") Not used (open)
61	MNT0	O	DA01 output when PSSL="H", MNT0 (monitor 0) signal output when PSSL="L" (PSSL (pin ㊸)=fixed at "L") Not used (open)
62	XTAI	I	System clock input terminal (16 MHz)
63	XTAO	O	System clock output terminal (16 MHz) Not used (open)
64	XTSL	I	System clock selection input terminal (fixed at "L")
65	DVSS	—	Ground terminal (digital system)
66	FSTI	I	2/3 divider input terminal of pins ㊷ (XATI) and ㊸ (XTAO)
67	FSTO	O	2/3 divider output terminal of pins ㊷ (XATI) and ㊸ (XTAO)
68	C4M	O	4.2336 MHz clock signal output terminal Not used (open)
69	C16M	O	16.9344 MHz clock signal output terminal Not used (open)
70	MD2	I	Digital out on/off control signal input from the system controller (IC351)
71	DOUT	O	Digital signal (for coaxial out and optical out) output terminal
72	EMPH	O	Emphasis control signal output terminal Not used (open)
73	WFCK	O	Write frame clock signal output terminal Not used (open)
74	SCOR	O	Sub-code sync (S0+S1) detection signal output to the system controller (IC351)

Pin No.	Pin Name	I/O	Function
75	SBSO	O	Sub-code P-W serial data output terminal Not used (open)
76	EXCK	I	Sub-code P-W serial data reading clock signal input terminal Not used (fixed at "L")
77	SUBQ	O	Sub-code Q data signal output to the system controller (IC351)
78	SQCK	I	Sub-code Q data reading clock signal input from the system controller (IC351)
79	MUTE	I	Mute signal input from the system controller (IC351)
80	SENS	O	Internal status (SENSE) signal output to the system controller (IC351)
81	$\overline{\text{XRST}}$	I	System reset signal input from the reset signal generator (IC206) "L": reset For several hundreds msec. after the power supply rises, "L" is input, then it changes to "H"
82	DIRC	I	1-track jump mode input terminal Not used (fixed at "H")
83	SCLK	I	Sense serial data reading clock signal input from the system controller (IC201)
84	DFSW	I	Defect on/off select signal input terminal Not used (fixed at "L")
85	ATSK	I	Input terminal for the anti-shock Not used (fixed at "L")
86	DATA	I	Serial data input from the system controller (IC351)
87	XLAT	I	Serial data latch pulse signal input from the system controller (IC351)
88	CLOK	I	Serial data transfer clock signal input from the system controller (IC351)
89	COUT	O	Track number count signal output terminal Not used (open)
90	DVDD	—	Power supply terminal (+5V) (digital system)
91	MIRR	O	Mirror detection signal output terminal Not used (open)
92	DFCT	O	Defect signal output terminal Not used (open)
93	FOK	O	Focus OK signal output terminal Not used (open)
94	FSW	O	Selection signal output terminal of the output filter for spindle motor Not used (open)
95	MON	O	Spindle motor on/off control signal output terminal Not used (open)
96	MDP	O	Spindle servo control signal output terminal
97	MDS	O	Spindle servo control signal output terminal Not used (open)
98	LOCK	O	GFS is sampled by 460 Hz "H" output when GFS is "H" Not used (open)
99	SSTP	I	Detection input from the sled limit-in detect switch (SW102) The optical pick-up is inner position when "H"
100	SFDR	O	Sled servo drive PWM signal (+) output to the BA6297AFP (IC102)

• **BD BOARD IC351 CXP84124-068Q (SYSTEM CONTROL)**

Pin No.	Pin Name	I/O	Function
1	A3	O	Address signal output to the static RAM (IC352)
2	A4	O	
3	A5	O	
4	A6	O	
5	A7	O	
6	A8	O	
7	A9	O	
8	A10	O	
9	A11	O	
10	A12	O	
11	$\overline{WE}$	O	Write enable signal output to the static RAM (IC352)
12	NC	O	Not used (open)
13	NC	O	Not used (open)
14	LED-PLAY	O	► LED (D871) drive signal output terminal "H": LED on
15	LED-PAUSE	O	❚❚ LED (D872) drive signal output terminal "H": LED on
16	LED-FILTER	O	FILTER LED (D873) drive signal output terminal "H": LED on
17	SPDL-MUTE	O	Mute signal output to the spindle motor driver (IC102, 104)
18	SHIFT-ON/OFF	O	Reset signal output to the CXD2562Q-CS (IC302) "L": reset
19	VOL UP	O	Volume up control signal output to the volume control motor driver (IC354)
20	VOL DOWN	O	Volume down control signal output to the volume control motor driver (IC354)
21	BLANK	O	Blank signal output to the fluorescent indicator tube driver (IC801 to IC803)
22	FL D0	O	Serial data output to the fluorescent indicator tube driver (IC803)
23	FL D1	O	Serial data output to the fluorescent indicator tube driver (IC802)
24	FL D2	O	Serial data output to the fluorescent indicator tube driver (IC801)
25	FL CLK	O	Serial data transfer clock signal output to the fluorescent indicator tube driver (IC801 to IC803)
26	FL WR	O	Read/write select signal output to the fluorescent indicator tube driver (IC801 to IC803)
27	SENSER SW	O	On/off control signal output to the stabilizer detect sensor (IC361) "H": on
28	SENSER	I	Detect signal input from the stabilizer detect sensor (IC361) "H": on
29	LIMIT OUT	I	Detection input from the sled limit-out detect switch The optical pick-up is outer position when "L" Not used (fixed at "L")
30	$\overline{RESET}$	I	System reset signal input from the reset signal generator (IC206) "L": reset For several hundreds msec. after the power supply rises, "L" is input, then it changes to "H"
31	XTALI	I	Main system clock input terminal (4 MHz)
32	XTALO	O	Main system clock output terminal (4 MHz)
33	VSS	—	Ground terminal
34	TX	O	Sub system clock output terminal Not used (open)
35	TEX	I	Sub system clock input terminal Not used (fixed at "L")
36	AVSS	—	Ground terminal (for A/D converter)
37	AVREF	I	Reference voltage input terminal (+5V)
38	ADJ/AFADJ	I	Setting terminal for the test mode "L" active
39	K0	I	Key input terminal (A/D input) (fixed at "H")
40	K1	I	Key input terminal (A/D input) P MODE, TIME keys (S819S820) input
41	K2	I	Key input terminal (A/D input) ERASE, CHECK, CLEAR, FILTER, ◄◄, ►► , keys (S801 to S806) input

Pin No.	Pin Name	I/O	Function
42	K3	I	Key input terminal (A/D input) EDIT/TIME FADE, REPEAT, FILE, ⏏ OPEN/CLOSE, ►, ❚❚, ■ keys (S811 to S817) input
43	K4	I	Rotary encoder input terminal (A/D input) AMS ▷▷❙ key (RV801) input
44	K5	I	Rotary encoder input terminal (A/D input) AMS ❙◁◁ key (RV801) input
45	IN/OUT SW	I	Detection input from the loading in/out detect switch (S281, S282) (A/D input)
46	SCLK	O	Sense serial data reading clock signal output to the CXD2545Q (IC101)
47	PRGL	O	Serial data latch pulse signal output to the CXD8595Q (IC301)
48	CLK	O	Serial data transfer clock signal output to the CXD2545Q (IC101) and CXD8595Q (IC301)
49	SENSE	I	Internal status (SENSE) signal input from the CXD2545Q (IC101)
50	DATA	O	Serial data output to the CXD2545Q (IC101) and CXD8595Q (IC301)
51	SQCK	O	Sub-code Q data reading clock signal output to the CXD2545Q (IC101)
52	SUBQ	I	Sub-code Q data signal input from the CXD2545Q (IC101)
53	TEST	O	Output terminal for the test Not used (open)
54	SEL1	I	Destination setting terminal (fixed at “L”)
55	SEL0	I	Destination setting terminal (fixed at “L”)
56	RMIN	I	Remote control signal input from the remote control receiver (IC804)
57	TIMER	I	Timer control input terminal Not used (fixed at “H”)
58	TEST	O	Output terminal for the test Not used (open)
59	TEST	O	Output terminal for the test Not used (open)
60	SCOR	I	Sub-code sync (S0+S1) detection signal input from the CXD2545Q (IC101)
61	AMUTE	O	Muting control signal output to the analog mute driver and mute relay driver
62	LDON	O	Laser diode on/off selection signal output to the RF amplifier in optical pick-up
63	XLT	O	Serial data latch pulse signal output to the CXD2545Q (IC101)
64	LOAD OUT	O	Loading motor (M2) drive signal output to the NJM4558 (IC182) *1
65	LOAD IN	O	Loading motor (M2) drive signal output to the NJM4558 (IC182) *1
66	DOUT	O	Digital out on/off control signal output to the CXD2545Q (IC101) Not used (Open)
67	DMUTE	O	Muting control signal output to the CXD2545Q (IC101) and CXD8595Q (IC301)
68	D0	I/O	Two-way data bus with the static RAM (IC352)
69	D1	I/O	
70	D2	I/O	
71	D3	I/O	
72	VDD	—	Power supply terminal (+5V)
73	NC	I	Not used (fixed at “H”)
74	D4	I/O	Two-way data bus with the static RAM (IC352)
75	D5	I/O	
76	D6	I/O	
77	D7	I/O	
78	A0	O	Address signal output to the static RAM (IC352)
79	A1	O	
80	A2	O	

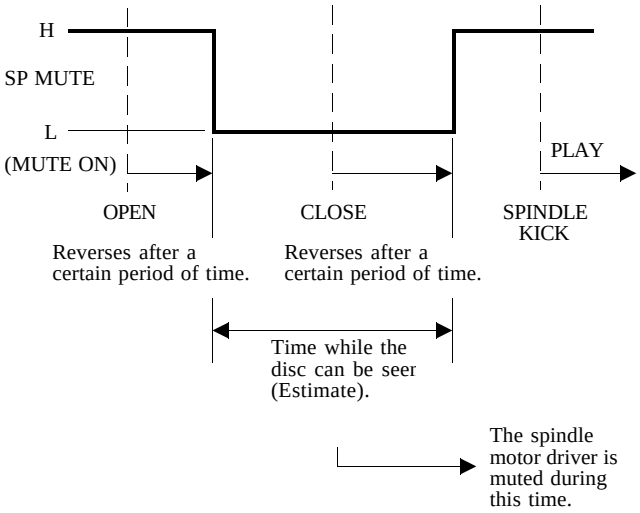
*1 Loading motor (M2) control

Operation / Terminal	OFF	OUT	I N	BRAKE
LOAD OUT (pin ⑭)	“L”	“H”	“L”	“H”
LOAD IN (pin ⑮)	“L”	“L”	“H”	“H”

• Main Ports

SPDL-MUTE (pin ⑰)

From the viewpoint of performance of the set, the disc must not move nor sway when the disc table opens. These problems however occur in the actual case due to the offset voltage generated and the voltage generated because of the positional relation between the BSL coil and Hall element.
The spindle motor driver (IC102, IC104) is therefore muted while the tray is open. Pin ⑰ provides the timing for this.

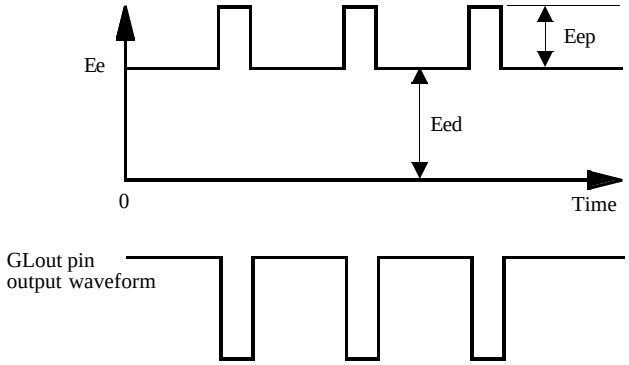


BLANK (pin ㉑)

This port is required because the display tube in this set static lights up and a dedicated screwdriver is required. It is basically a RESET pin. But as problems will occur if used also as RESET, timings are specially provided using the micro-processor.

SENSER SW (pin ㉗)

As IC361 IS471F operate in pulse as shown in the figure, the sound quality may be affected if operated constantly. As the purpose of IC361 is to detect if the presence of the stabilizer, it should be operated only when the tray is drawn in. IC361 operates as it is "H" only at this time. Normally it is "L".



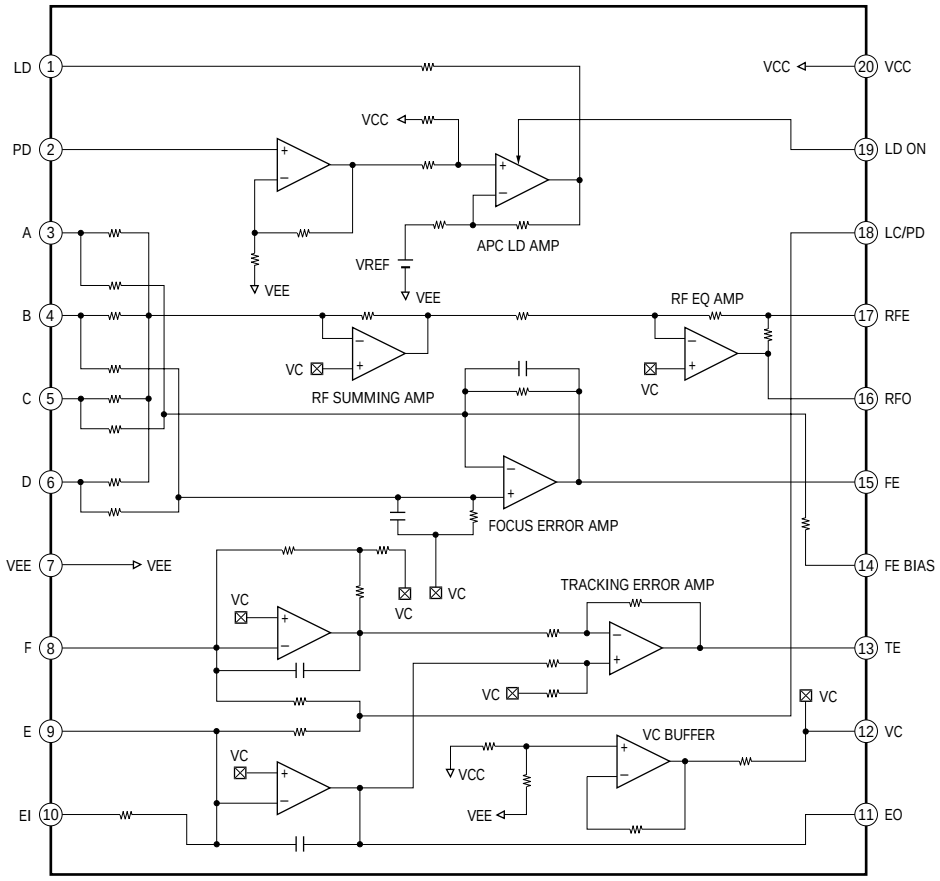
* Eep is the luminance of the signal light tuned with the low level timing of the GLout pin output.
Eed is the luminance of the D.C. light. The light source is the infrated-emitting diode (λp=940 nm).

SENSER (pin ㉘)

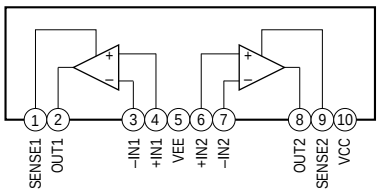
The results of the detection of IC361 IS471F is output to this pin. It becomes "L" when there is no stabilizer (when light reaches). The next process of imposing the next focus is not performed. (Effective only when pin ㉗ is "H".)
Therefore, it must be noted that if PLAY is performed when th servo board at the top of the CDM is not assembled properly, the detection circuit operates and this pin does not operate.
It is does not operate, refer to 1. SERVICING NOTES " Preparations for Adjustment and Measurement" on page 3.

• IC Block Diagrams
– BD Section –

IC103 CXA1821M

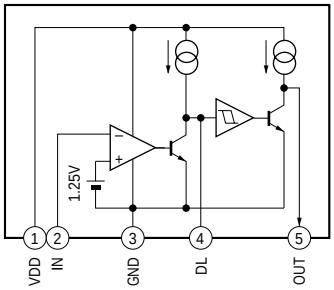


IC181 TA7256P

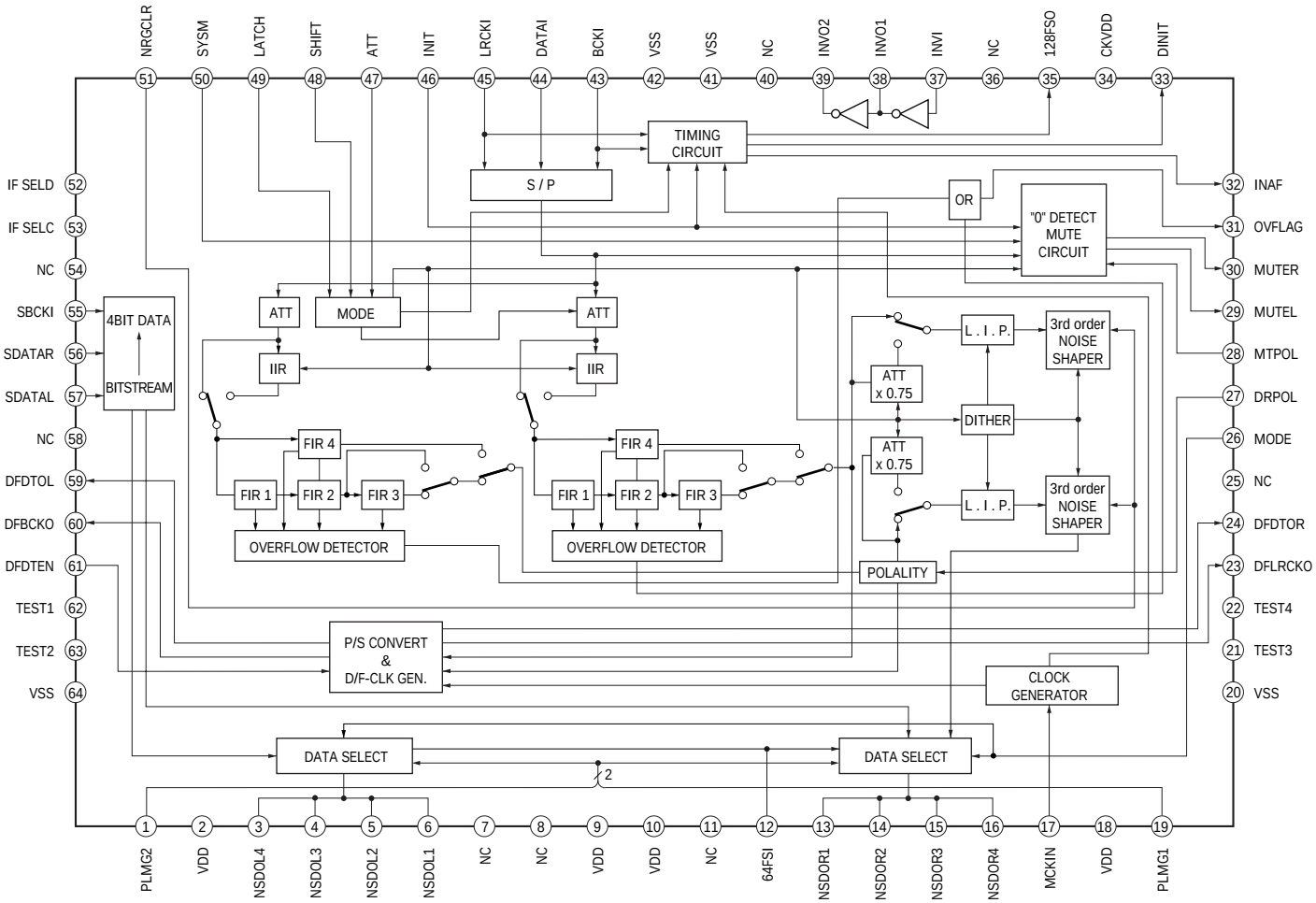


– MAIN Section –

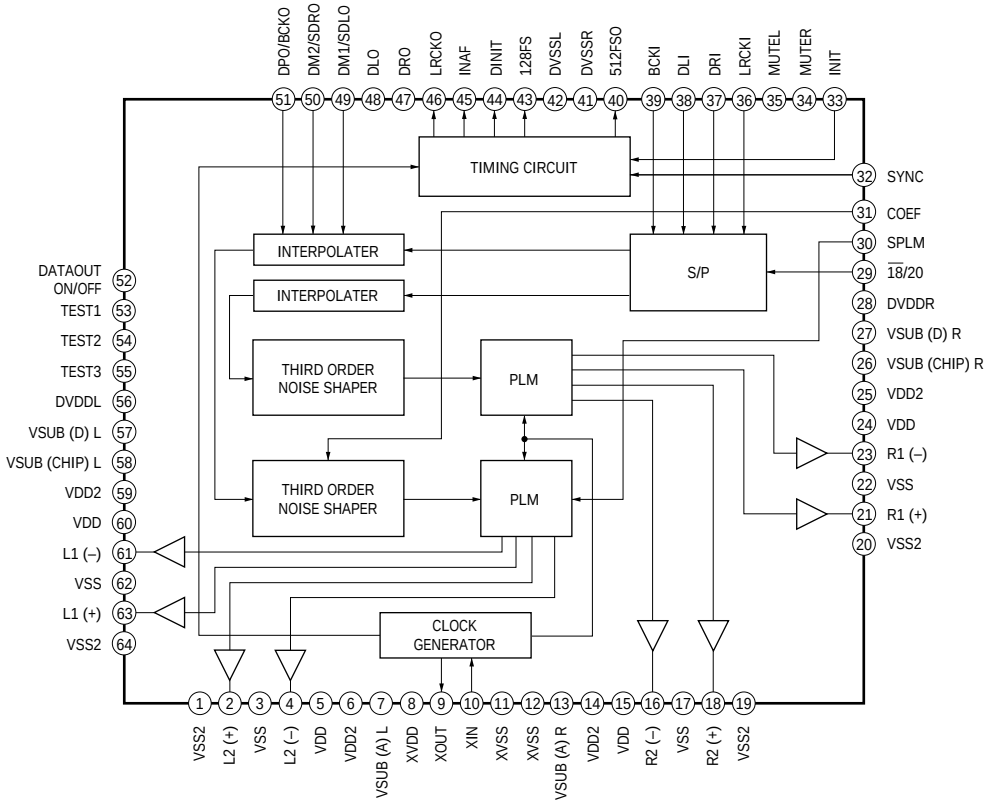
IC206 M51957AL



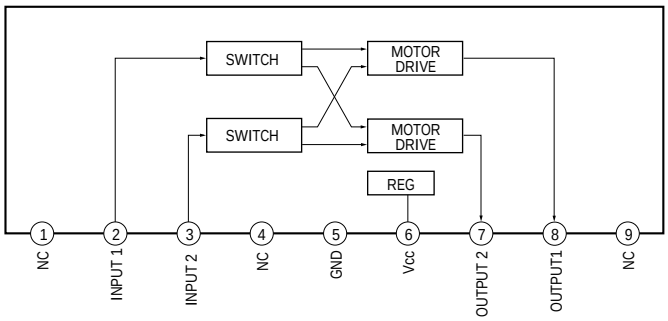
IC301 CXD8595Q



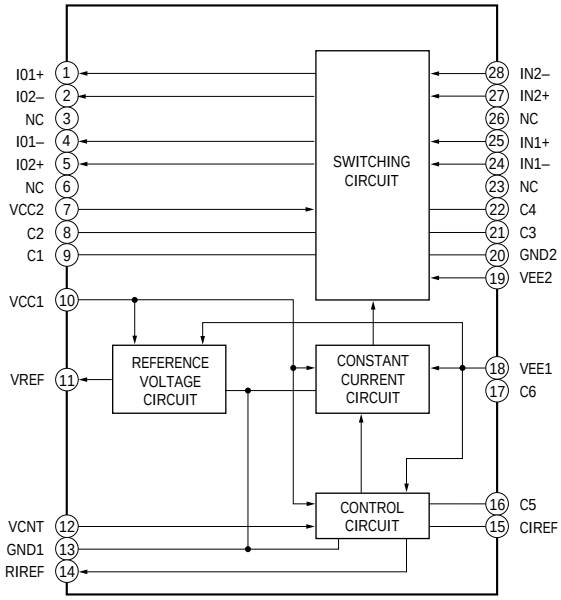
IC302 CXD2562Q



IC354 BA6208

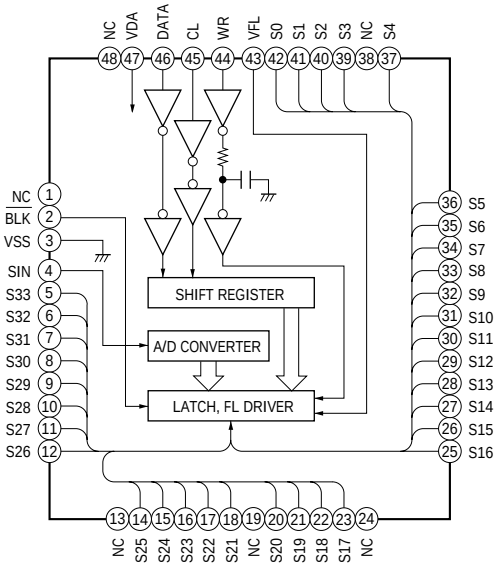


IC501, 601 CXA8042AS



– PANEL Section –

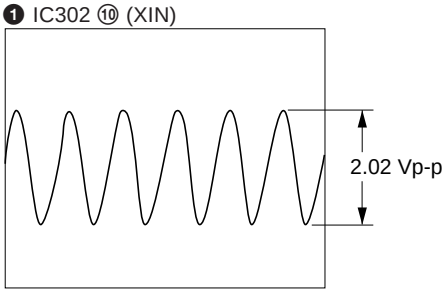
IC801, 802, 803 LC7570E



• Wave forms

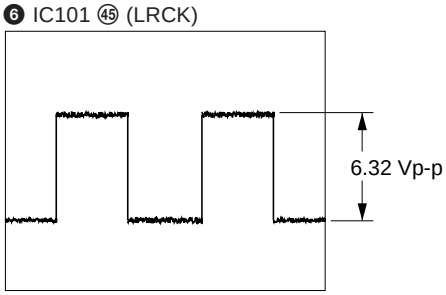
– MAIN BOARD –

❶ IC302 ⑩ (XIN)



45.455 MHz

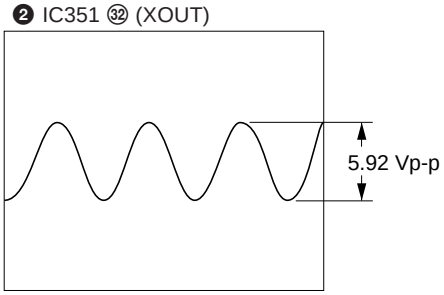
❻ IC101 ㊺ (LRCK)



44.053 kHz

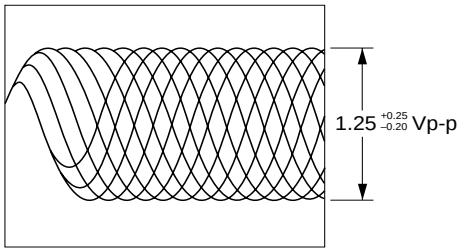
– BD BOARD –

❷ IC351 ㉜ (XOUT)

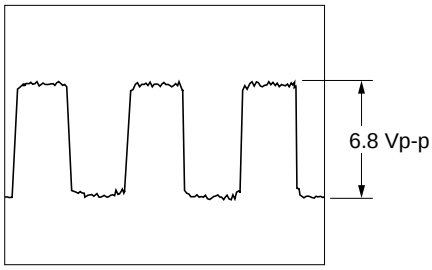


4.00 MHz

❼ IC101 ㊱ (RFAC)
200 mV/DIV, 500 nS/DIV

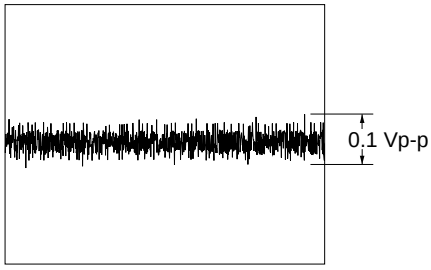


❸ IC101 ㊸ (XPLCK)

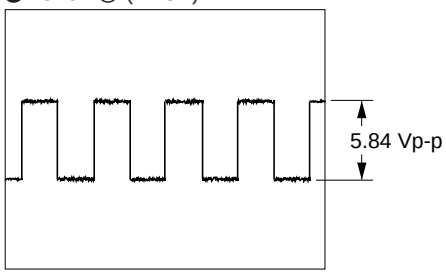


4.310 MHz

❽ IC101 ㉙ (FE)

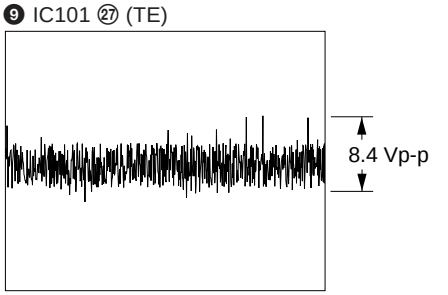


❹ IC101 ㊺ (RFCK)

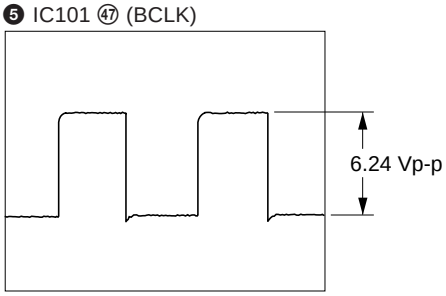


7.353 kHz

❾ IC101 ㉗ (TE)

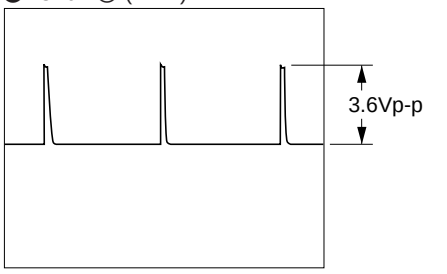


❺ IC101 ㊼ (BCLK)



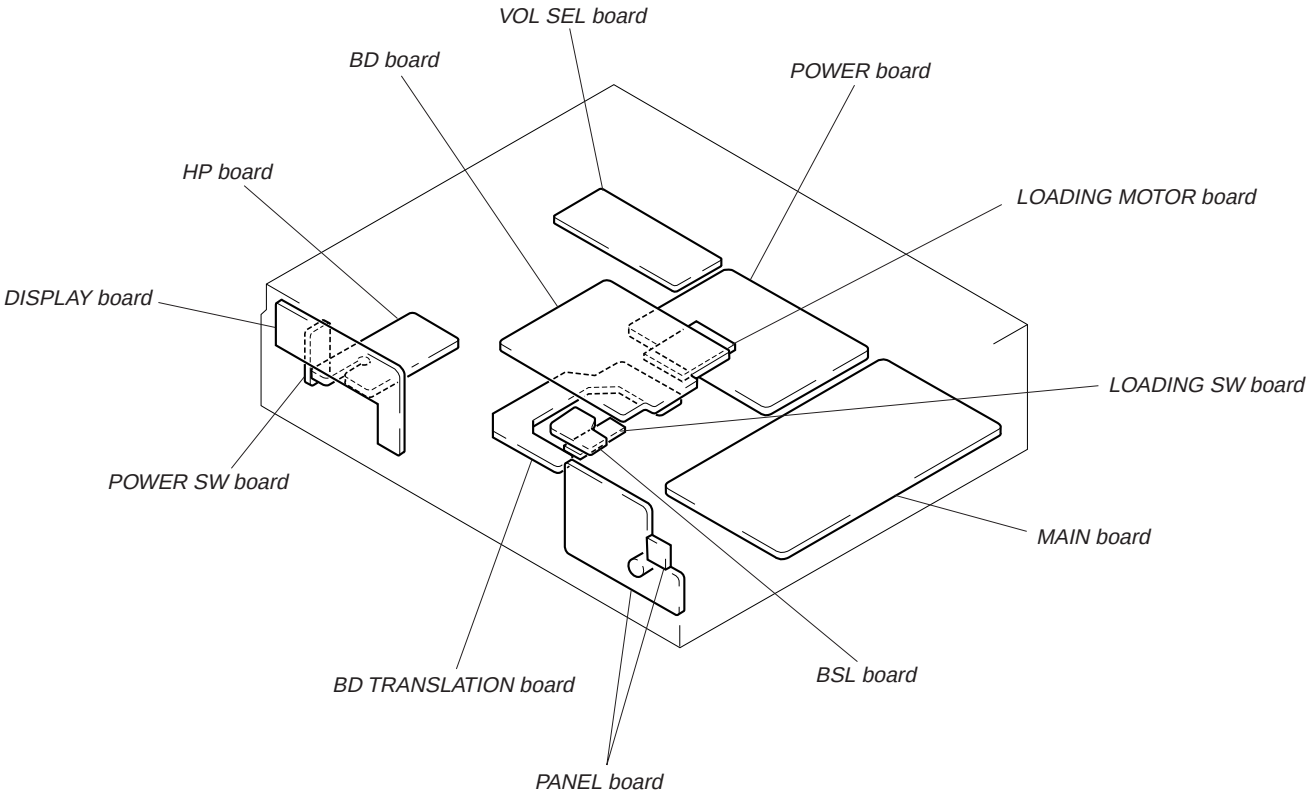
2.1186 MHz

❿ IC101 ㊻ (MDP)

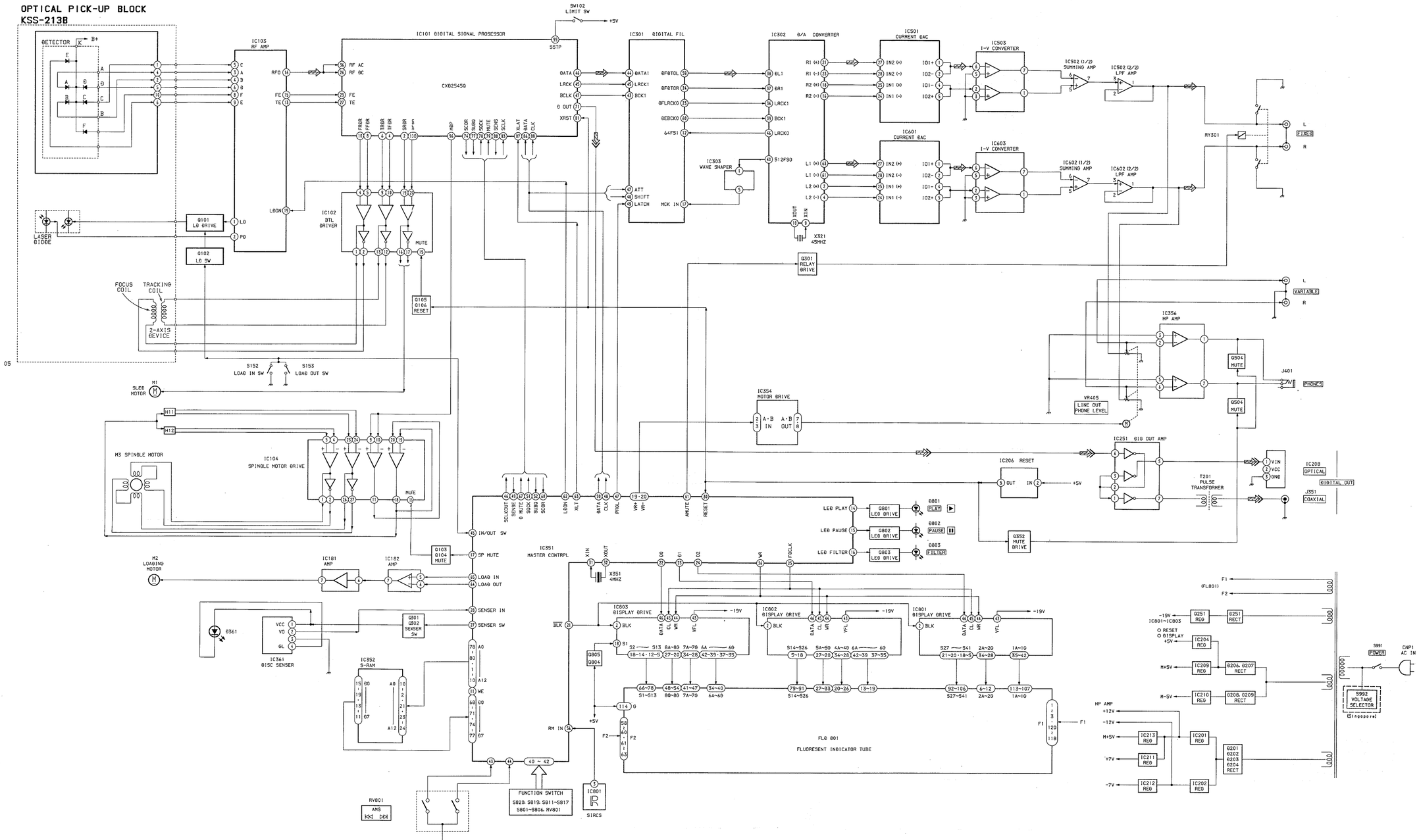


131.58 kHz

• Circuit Boards Location



6-2. BLOCK DIAGRAM



- SIGNAL PATH.
  ⇨ : CD
  ⇨ : DIGITAL OUT

6-3. PRINTED WIRING BOARDS – BD Section –

• See page 34 for Circuit Boards Location.

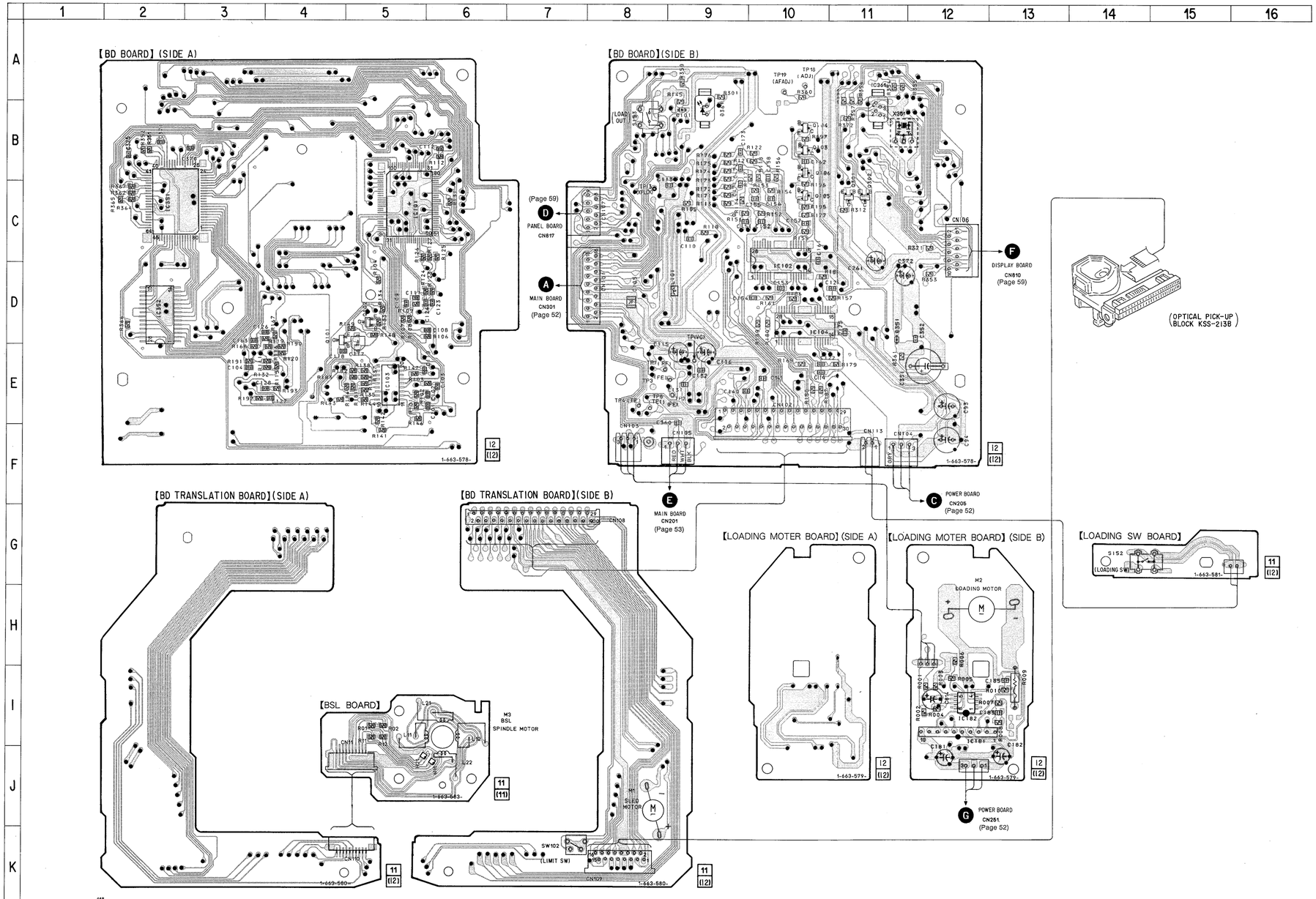
• **Semiconductor Location**

Ref. No.	Location
D101	B-9
D351	D-11
D361	B-9
IC101	C-5
IC102	C-10
IC103	E-5
IC104	D-10
IC181	I-12
IC182	I-12
IC351	C-2
IC352	D-2
IC361	B-11
Q101	D-4
Q102	D-5
Q103	B-10
Q104	B-10
Q105	C-10
Q106	B-10
Q301	C-11
Q302	C-11

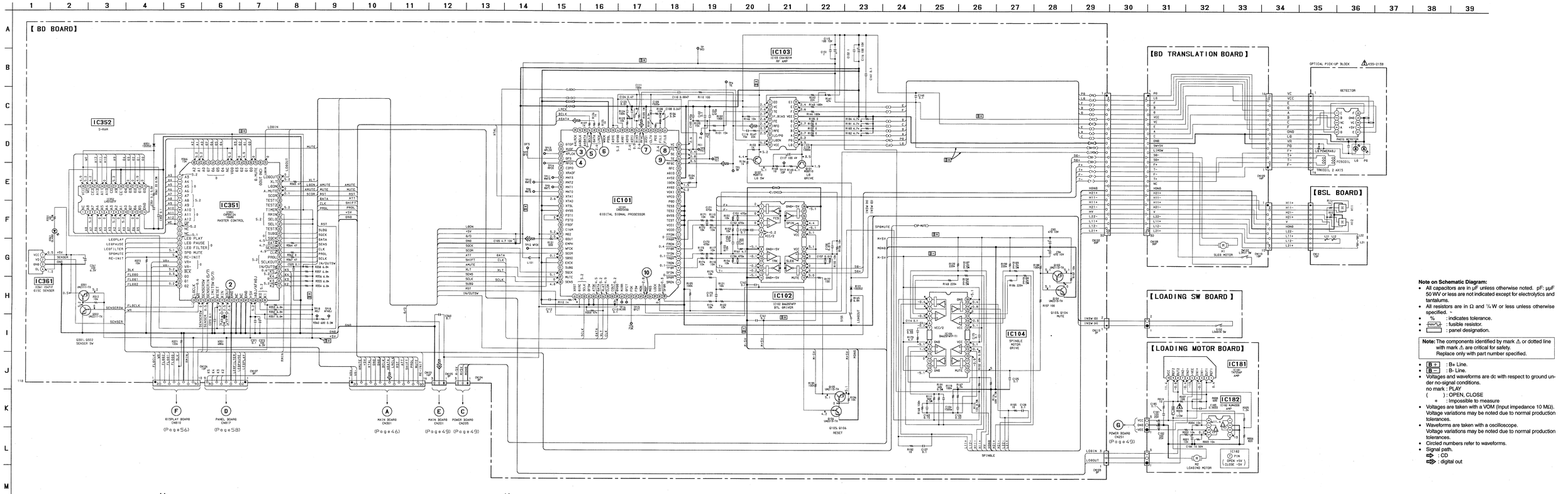
Note on Printed Wiring Board:
- o——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- ● : Through hole.
- △ : internal component.
- ▒▒▒ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Side B)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A)	Parts on the parts face side seen from the parts face are indicated.



6-4. SCHEMATIC DIAGRAM – BD Section – • See page 29 for IC Block Diagrams. • See page 33 for Waveforms.



Note on Schematic Diagram:

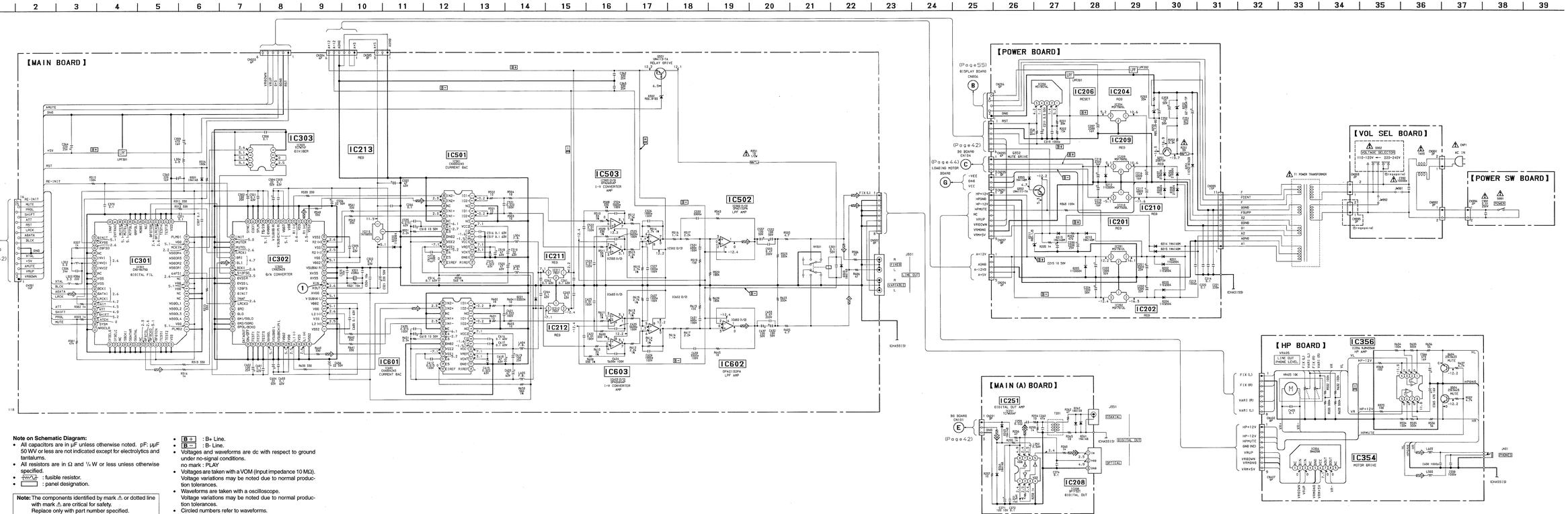
- All capacitors are in µF unless otherwise noted. pF: µµF
  50 WV or less are not indicated except for electrolytics and tantaliums.
- All resistors are in Ω and ¼ W or less unless otherwise specified. ~
- % : indicates tolerance.
- : fusible resistor.
- : panel designation.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- B+ : B+ Line.
- B- : B- Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark : PLAY
  ( ) : OPEN, CLOSE
  * : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD
  ⇨ : digital out

6-5. SCHEMATIC DIAGRAM – MAIN Section –

• See page 30–32 for IC Block Diagrams. • See page 33 for Waveforms.

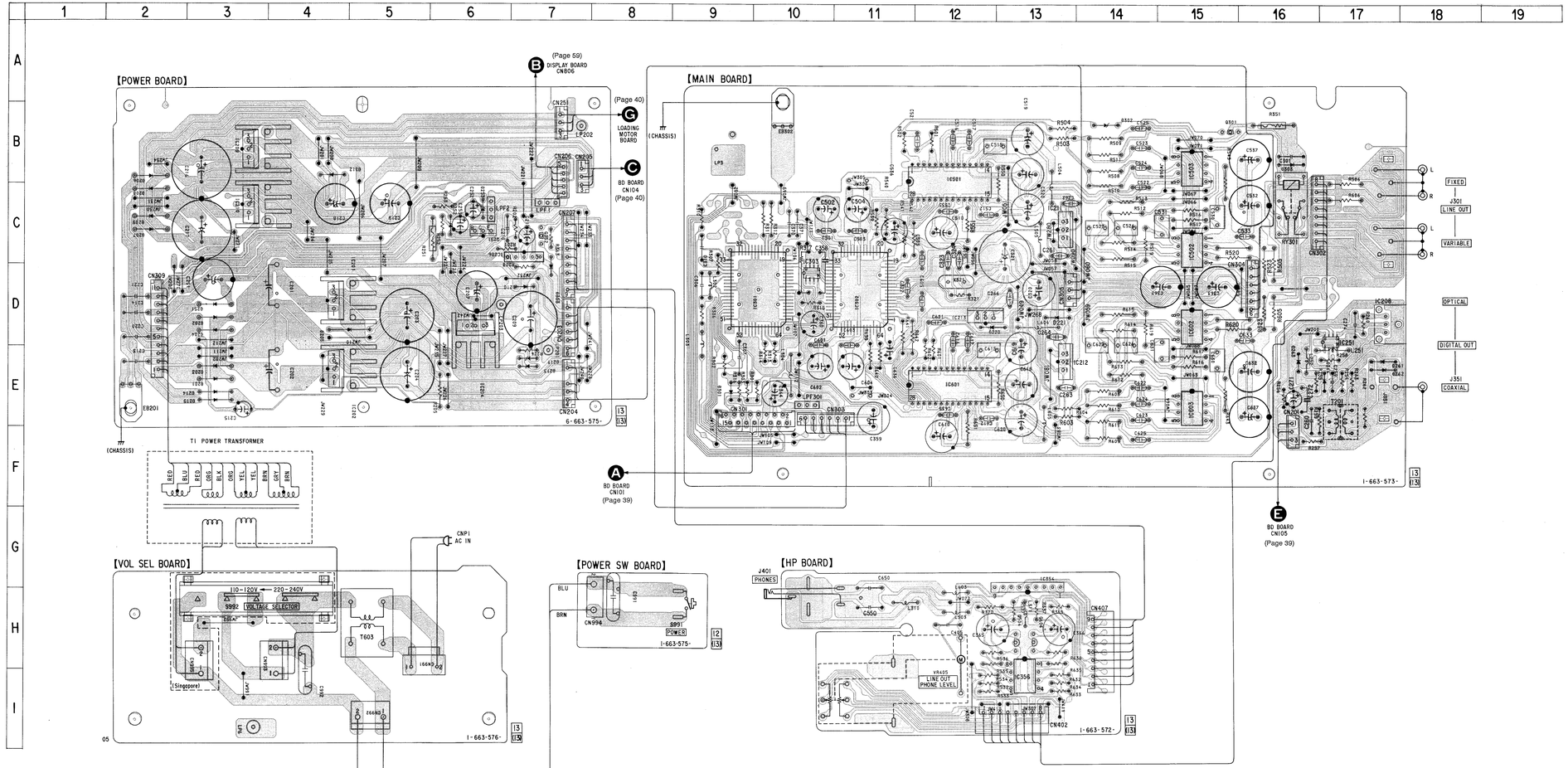


Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF
  50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- : fusible resistor.
- : panel designation.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- B+ : B+ Line.
- B– : B– Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark : PLAY
- Voltages are taken with a VOM (Input impedance 10 MΩ).
  Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  : CD
  : digital out



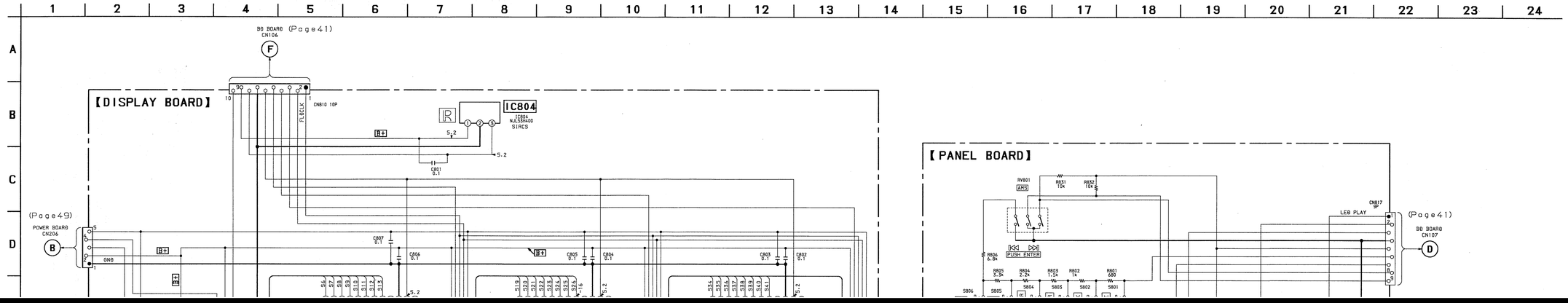
• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D201	E-3	IC201	D-4
D202	D-3	IC202	E-4
D203	E-3	IC204	D-6
D204	D-3	IC206	C-7
D205	E-5	IC208	D-17
D206	B-2	IC209	B-3
D207	C-2	IC210	C-3
D208	C-2	IC211	C-13
D209	C-2	IC212	D-13
D210	D-7	IC213	D-12
D211	E-7	IC301	D-10
D212	B-4	IC302	D-11
D213	E-7	IC303	D-10
D214	E-3	IC354	G-13
D215	E-3	IC356	I-13
D220	D-12	IC501	B-12
D221	D-13	IC502	C-15
D251	D-3	IC503	B-15
D252	C-6	IC601	E-12
D253	C-6	IC602	D-15
D301	E-9	IC603	E-15
D302	B-15		
D303	B-16	Q251	C-6
D353	D-7	Q301	B-15
		Q352	C-7
		Q504	H-13
		Q604	H-13

Note on Printed Wiring Board:
- ——— : parts extracted from the component side.
- ▒▒▒ : Pattern from the side which enables seeing.

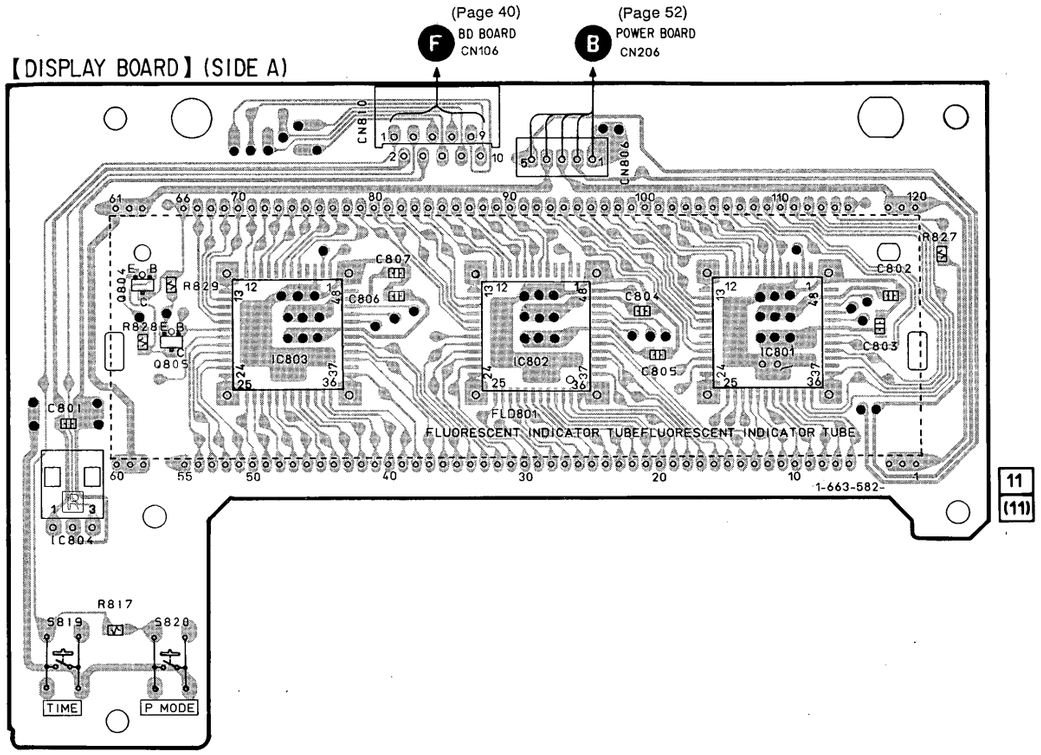
6-7. SCHEMATIC DIAGRAM – PANEL Section –

• See page 32 for IC Block Diagrams. • See page 33 for Waveforms.

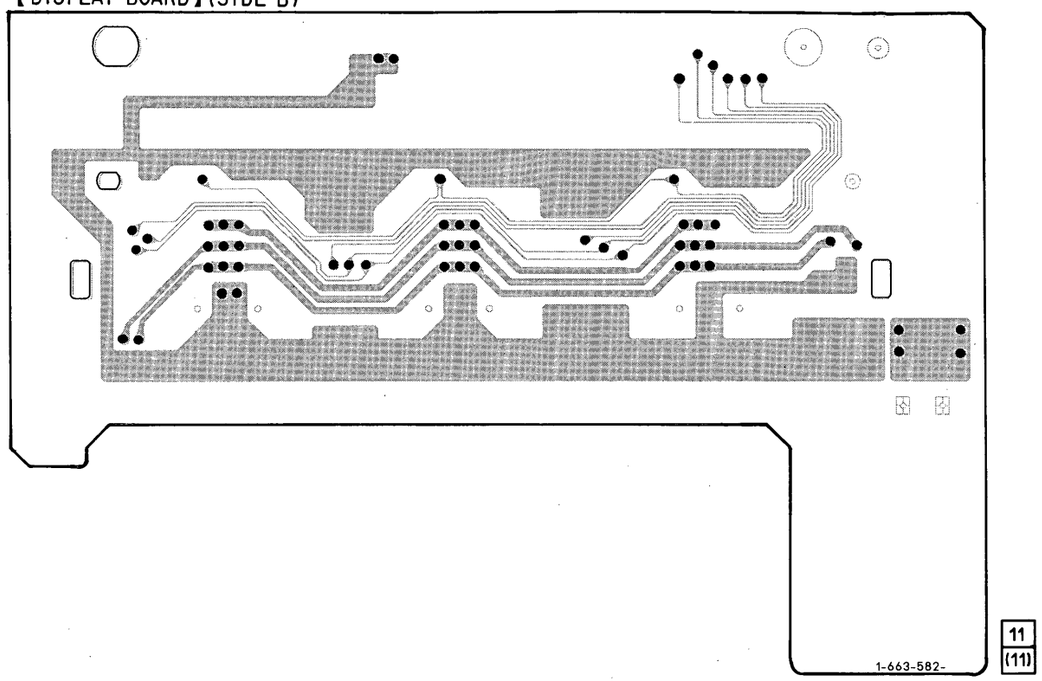


6-8. PRINTED WIRING BOARDS – PANEL Section – • See page 34 for Circuit Boards Location.

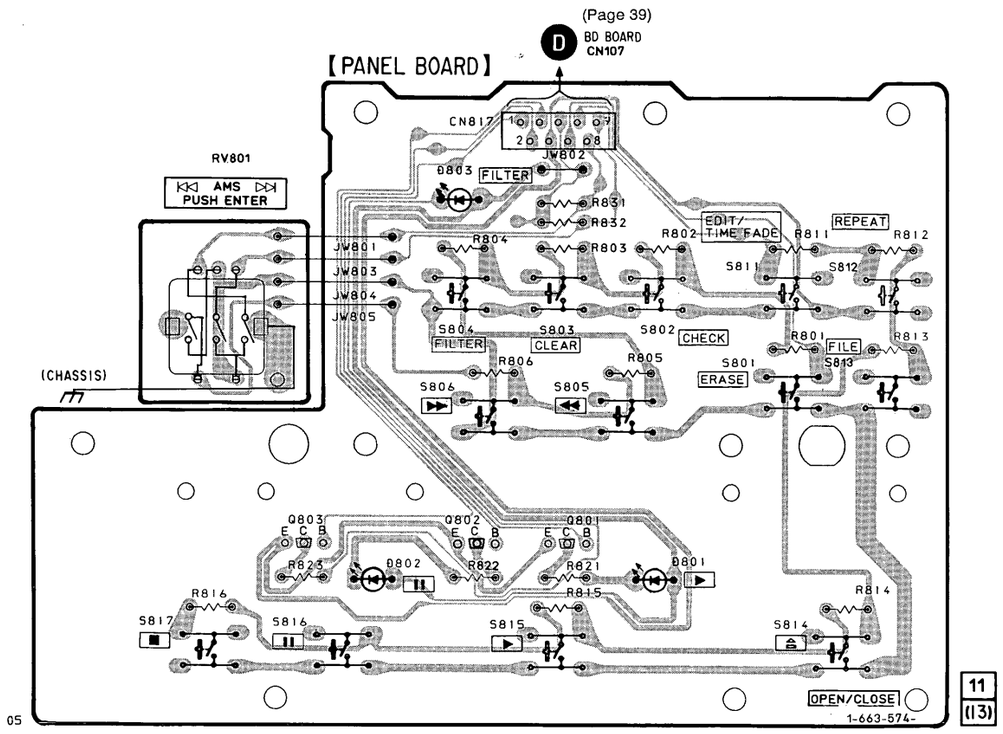
【DISPLAY BOARD】(SIDE A)



【DISPLAY BOARD】(SIDE B)



【PANEL BOARD】



• **Semiconductor Location**

Ref. No.	Location
D801	H-5
D802	H-3
D803	F-4
IC801	C-5
IC802	H-4
IC803	C-4
IC804	C-3
	D-2
Q801	H-4
Q802	H-4
Q803	H-3
Q804	B-2
Q805	C-2

Note on Printed Wiring Board:

- ○—— : parts extracted from the component side.
- ● : Through hole.
- ▒▒ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

Caution:
Pattern face side: (Side B) Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A) Parts on the parts face side seen from the parts face are indicated.

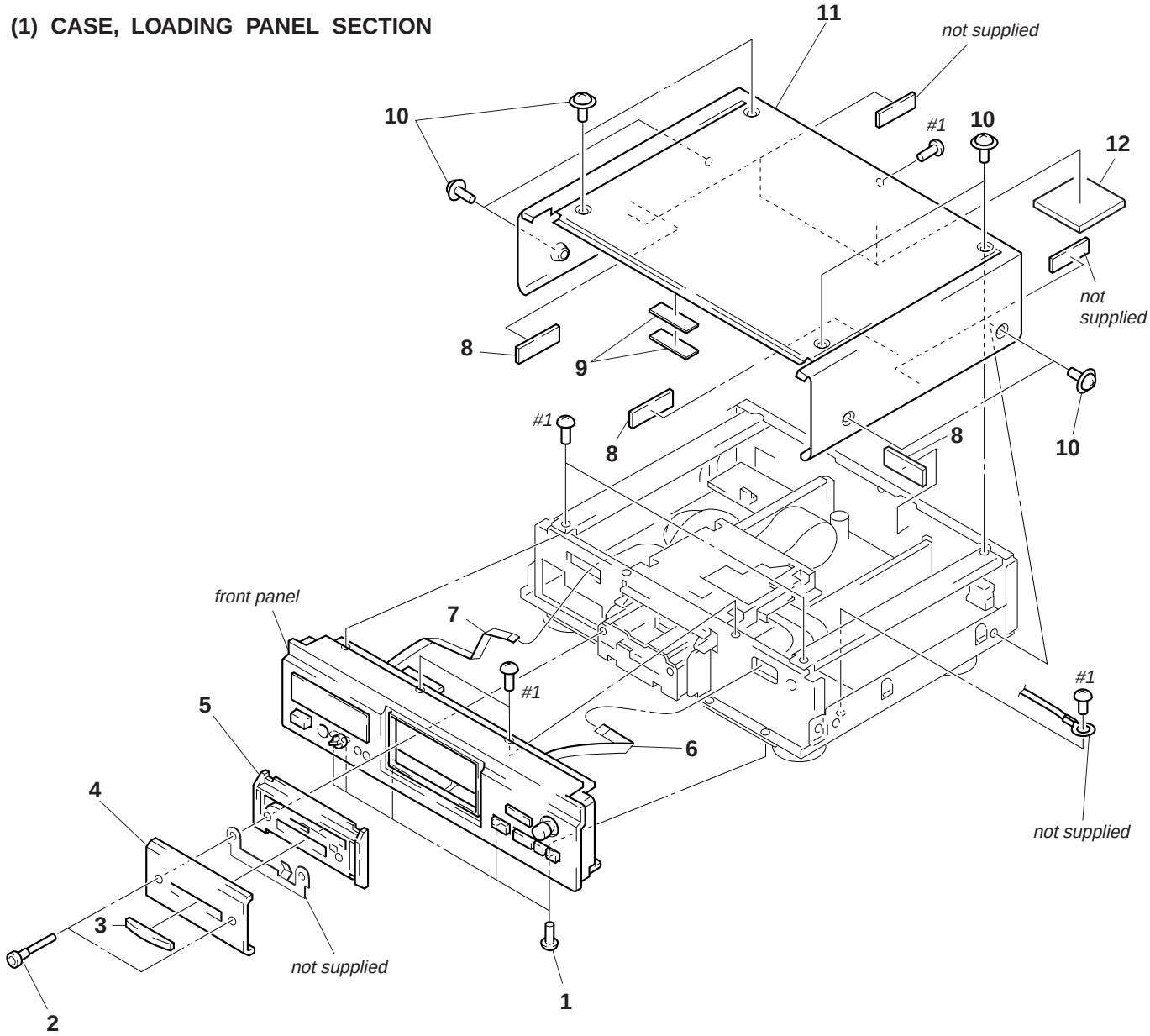
SECTION 7
EXPLODED VIEWS

NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE)
  ↑
  Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of the electrical parts list.

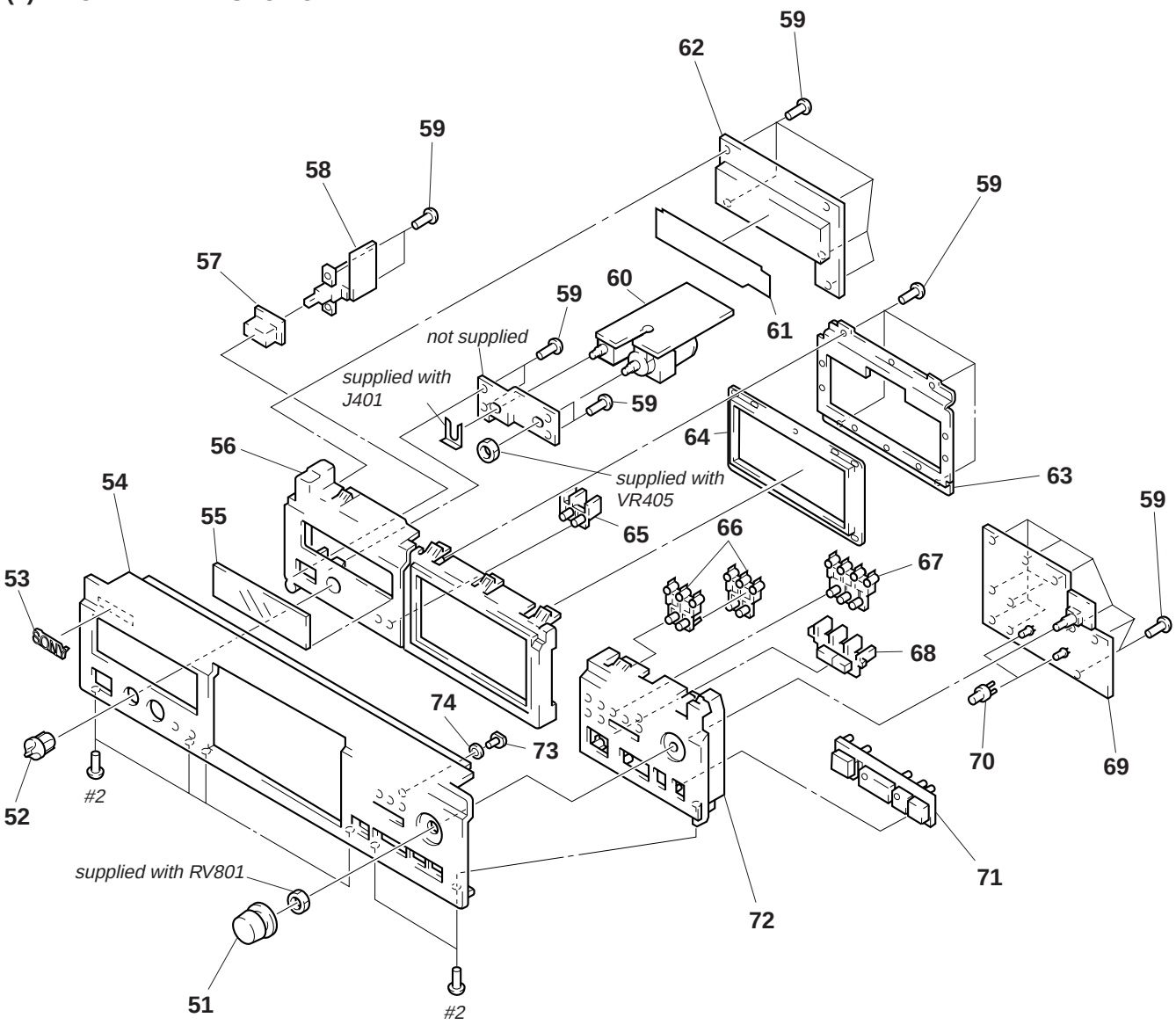
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

(1) CASE, LOADING PANEL SECTION



Ref. No.	Part No.	Description	Remark
1	3-703-685-21	SCREW (+BV 3X8)	
2	4-970-998-21	BOLT (LID), HEXAGON HOLE (GOLD)	
2	4-970-998-31	BOLT (LID), HEXAGON HOLE (BLACK)	
3	4-987-965-01	EMBLEM (FIXED PICKUP) (GOLD)	
3	4-987-965-11	EMBLEM (FIXED PICKUP) (BLACK)	
4	4-986-744-01	PANEL, LOADING (GOLD)	
4	4-986-744-11	PANEL, LOADING (BLACK)	
5	4-986-745-01	BASE, LOADING PANEL (GOLD)	
5	4-986-745-11	BASE, LOADING PANEL (BLACK)	
6	1-777-844-11	WIRE (FLAT TYPE) (9 CORE)	
7	1-777-845-11	WIRE (FLAT TYPE) (10 CORE)	
8	4-959-077-01	DAMPER	
* 9	4-615-354-01	SPACER	
10	3-363-099-01	SCREW (CASE 3 TP2) (BLACK)	
10	3-363-099-11	SCREW (CASE 3 TP2) (GOLD)	
11	4-969-469-01	CASE (BLACK)	
11	4-969-469-31	CASE (GOLD)	
* 12	4-962-329-01	DAMPER	

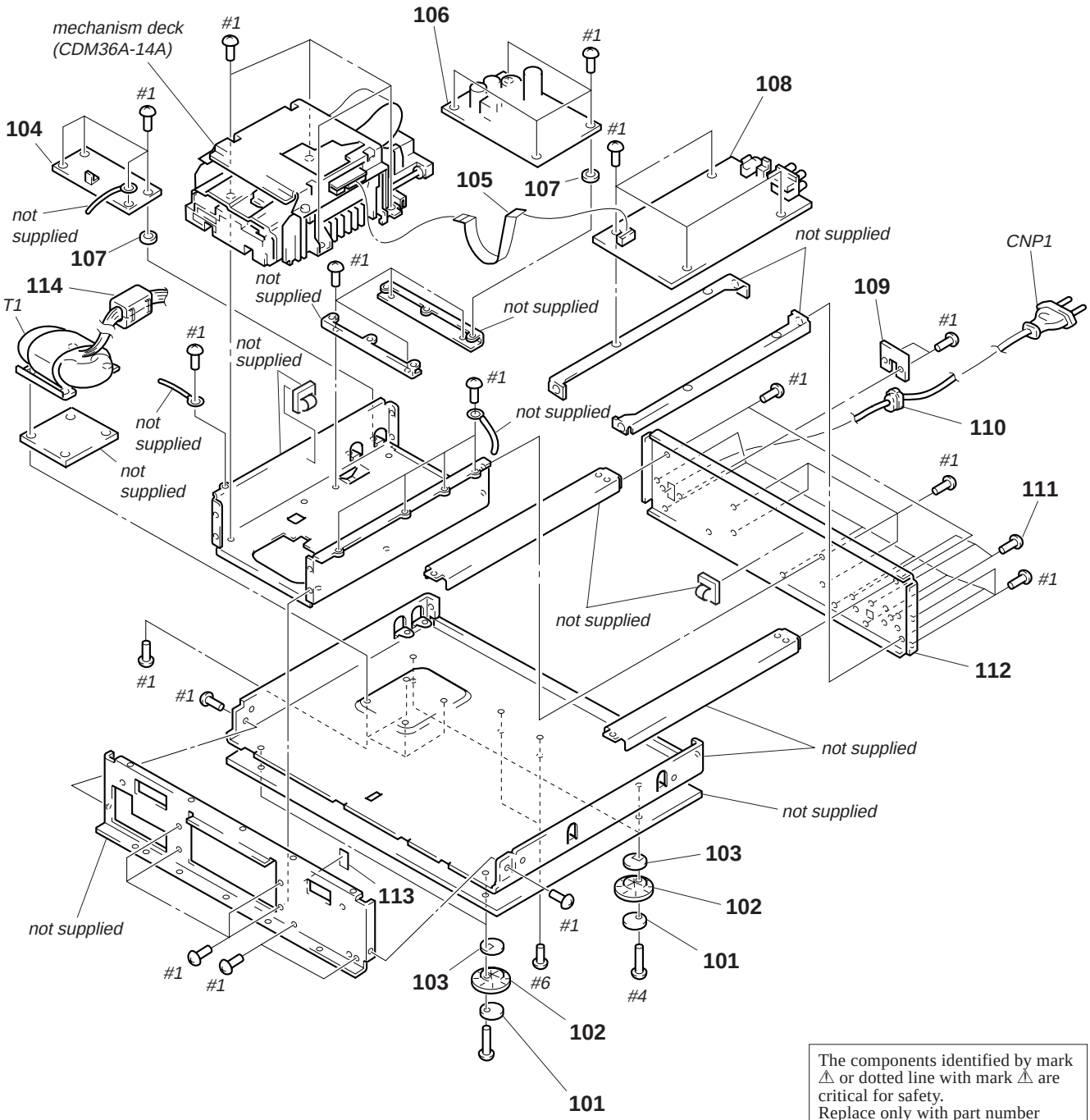
(2) FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
51	4-987-121-01	KNOB (AMS) (GOLD)	
51	4-987-121-11	KNOB (AMS) (BLACK)	
52	4-950-189-01	KNOB (A) (VOL) (BLACK)	
52	4-950-189-41	KNOB (A) (VOL) (GOLD)	
53	4-942-568-01	EMBLEM (NO.5), SONY (BLACK)	
53	4-942-568-31	EMBLEM (NO.5), SONY (GOLD)	
54	4-986-664-01	PANEL, FRONT (GOLD)	
54	4-986-664-11	PANEL, FRONT (BLACK)	
55	4-986-670-01	PLATE, INDICATION	
56	4-986-666-01	BASE (L), PANEL (GOLD)	
56	4-986-666-11	BASE (L), PANEL (BLACK)	
57	4-923-520-51	KNOB, POWER (POWER) (BLACK)	
57	4-923-520-61	KNOB, POWER (POWER) (GOLD)	
* 58	1-663-575-12	POWER SW BOARD	
59	4-951-620-01	SCREW (2.6X8), +BVTP	
* 60	A-4699-566-A	HP BOARD, COMPLETE (BLACK)	
* 60	A-4699-710-A	HP BOARD, COMPLETE (GOLD)	
61	4-986-669-01	FILTER	
* 62	A-4699-353-A	DISPLAY BOARD, COMPLETE	
63	4-986-668-01	BRACKET (PACKING)	

Ref. No.	Part No.	Description	Remark
64	4-986-667-01	PACKING	
65	4-986-687-01	BUTTON (P.MODE) (GOLD)	
65	4-986-687-11	BUTTON (P.MODE) (BLACK)	
66	4-986-671-01	BUTTON (2) (GOLD)	
66	4-986-671-11	BUTTON (2) (BLACK)	
67	4-986-672-01	BUTTON (3) (GOLD)	
67	4-986-672-11	BUTTON (3) (BLACK)	
68	4-986-673-01	BUTTON (FF) (◀◀. ▶▶) (GOLD)	
68	4-986-673-11	BUTTON (FF) (◀◀. ▶▶) (BLACK)	
* 69	A-4699-354-A	PANEL BOARD, COMPLETE	
* 70	3-362-478-01	HOLDER (T), LED	
71	X-4945-276-1	BUTTON (PLAY) ASSY (⏏ OPEN/CLOSE. ▶. ❚❚. ■) (BLACK)	
71	X-4948-030-1	BUTTON (PLAY) ASSY (⏏ OPEN/CLOSE. ▶. ❚❚. ■) (GOLD)	
72	4-986-665-01	BASE (R), PANEL (GOLD)	
72	4-986-665-11	BASE (R), PANEL (BLACK)	
73	4-971-776-01	INDICATOR	
74	4-949-302-21	WASHER	

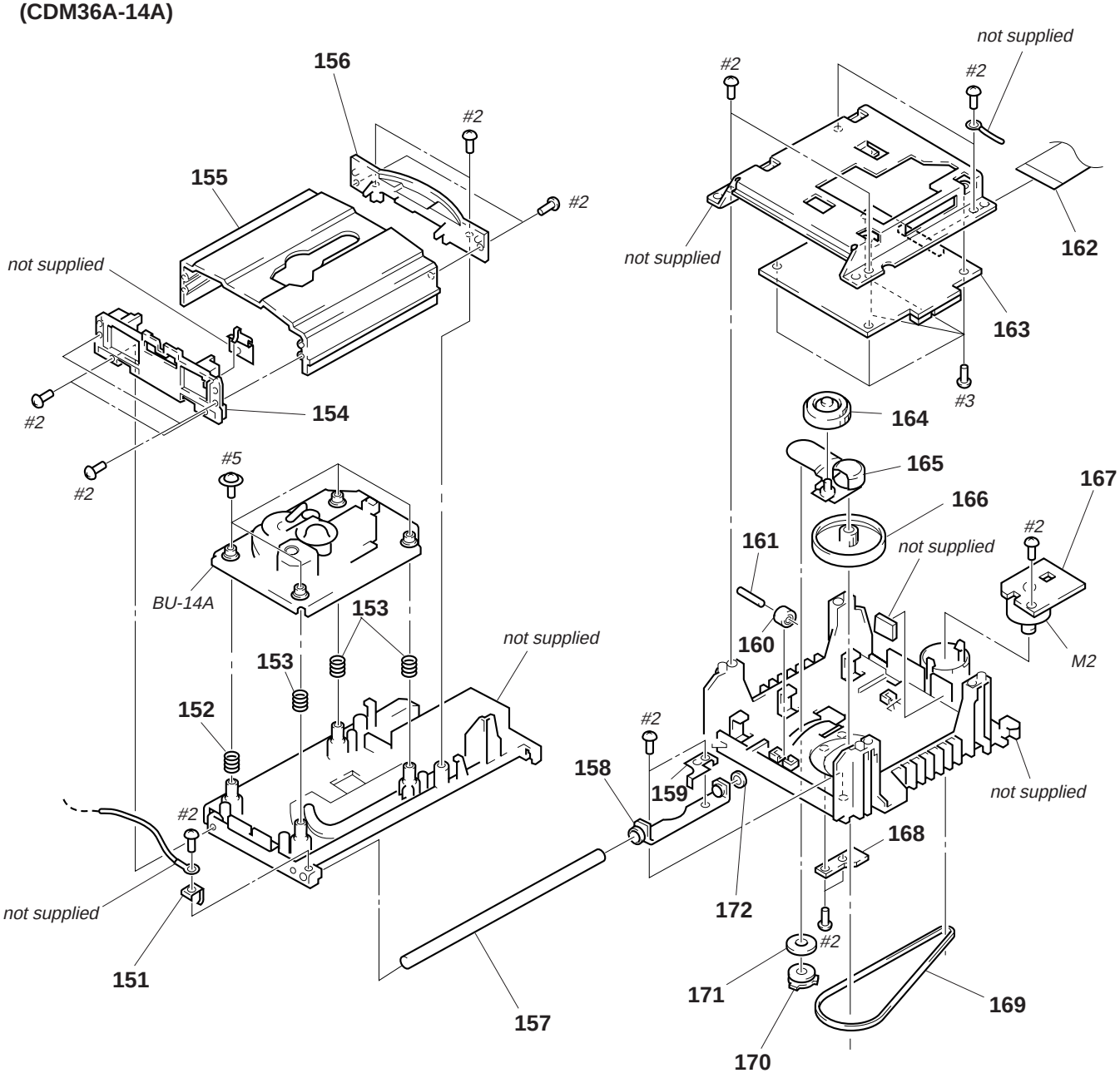
(3) CHASSIS SECTION



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
101	4-970-124-01	CUSHION (F50180S)	
102	4-970-123-01	FOOT (F50180S)	
103	4-984-485-01	CUSHION (FOOT)	
* 104	1-663-576-13	VOL SEL BOARD	
105	1-777-873-11	WIRE (FLAT TYPE) (16 CORE)	
* 106	A-4699-712-A	POWER BOARD, COMPLETE	
107	4-985-057-01	WASHER	
* 108	A-4699-567-A	MAIN BOARD, COMPLETE	
* 109	4-923-873-01	BRACKET, CORD STOPPER	
* 110	3-703-244-00	BUSHING (2104), CORD	
111	3-704-515-21	SCREW (BV/RING)	
* 112	4-986-682-11	PANEL, BACK (AEP)	
* 112	4-986-682-22	PANEL, BACK (Singapore)	
113	3-831-441-XX	CUSHION, SPEAKER	
114	1-543-653-11	CORE ASSY, BEAD (DIVISION TYPE)	
⚠CNP1	1-558-568-21	CORD, POWER	
⚠T1	1-431-214-11	TRANSFORMER, POWER (Singapore)	
⚠T1	1-431-215-11	TRANSFORMER, POWER (AEP)	

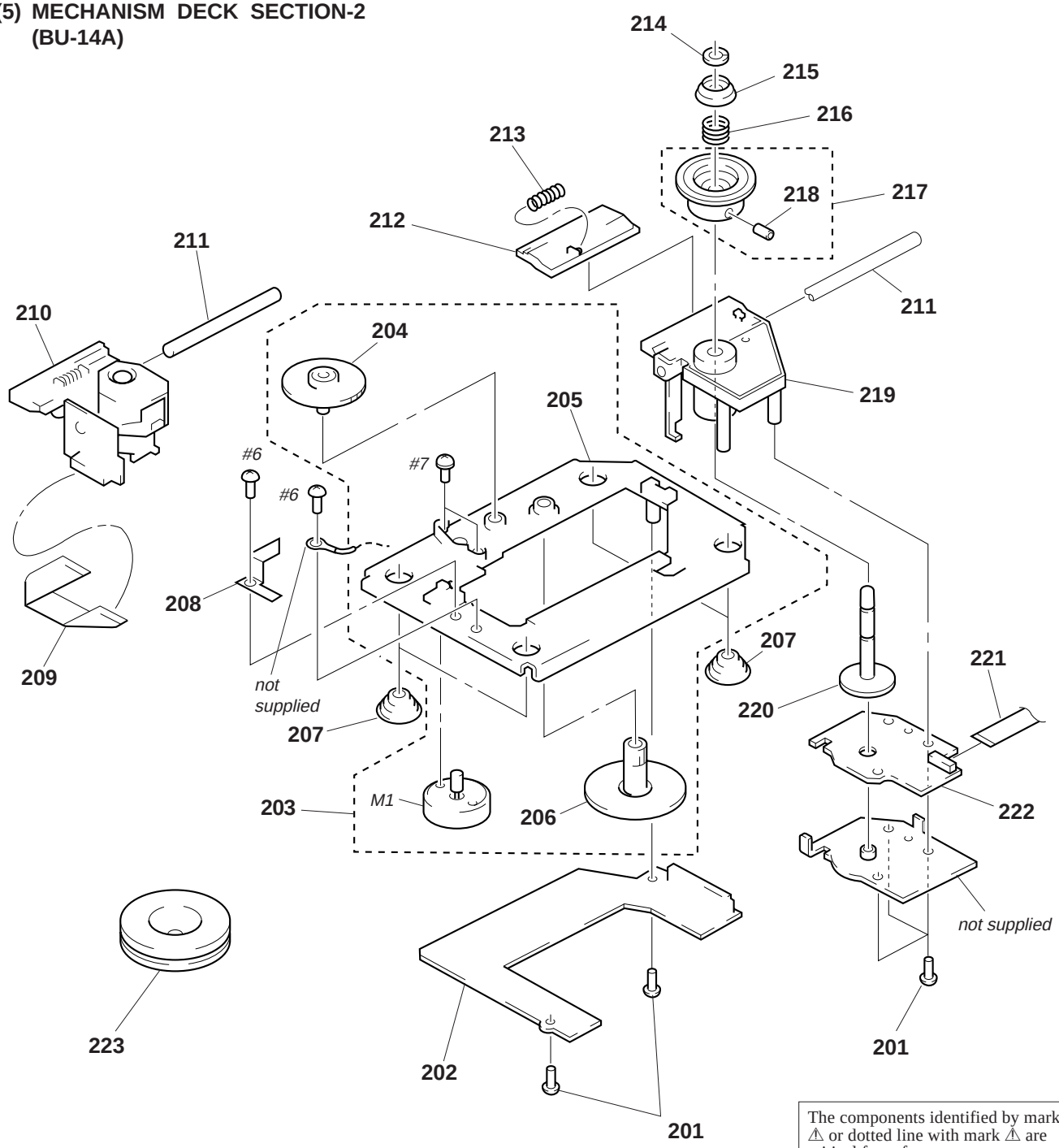
(4) MECHANISM DECK SECTION-1 (CDM36A-14A)



Ref. No.	Part No.	Description	Remark
* 151	4-977-889-01	PLATE (BU), GROUND	
152	4-989-303-01	SPRING (BU-LF), COMPRESSION	
153	4-988-104-01	SPRING (BU), COMPRESSION	
* 154	4-986-917-01	COVER (F) (DRAWER)	
155	4-986-916-01	PANEL (DRAWER)	
* 156	4-986-918-01	COVER (R) (DRAWER)	
* 157	4-977-888-01	SHAFT	
* 158	4-977-892-01	BEARING	
* 159	4-977-891-01	PLATE, GROUND	
160	X-4924-457-1	ROLLER ASSY	
161	4-934-376-01	SHAFT (ROLLER)	
162	1-777-843-11	WIRE (FLAT TYPE) (30 CORE)	

Ref. No.	Part No.	Description	Remark
* 163	A-4699-708-A	BD BOARD, COMPLETE	
164	4-977-897-01	GEAR	
165	4-977-898-01	LEVER (SWING)	
166	4-977-896-01	PULLEY	
* 167	1-663-579-11	LOADING MOTOR BOARD	
* 168	1-663-581-11	LOADING SW BOARD	
169	4-968-905-01	BELT (CDM)	
170	4-986-919-01	LIMITTER (LEVER)	
171	4-988-103-01	SLIDER (SWING)	
172	4-988-107-01	CUSHION (LD)	
M2	A-4660-970-A	MOTOR ASSY (LOADING)	

(5) MECHANISM DECK SECTION-2 (BU-14A)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
201	4-951-620-01	SCREW (2.6X8), +BVTP	
* 202	1-663-580-11	BD TRANSLATION BOARD	
203	A-4672-247-A	BASE (OUTSERT) ASSY	
204	4-977-921-01	GEAR (B), FLAT	
* 205	4-977-918-01	BASE (OUTSERT)	
206	4-977-920-01	GEAR (C), FLAT	
207	4-917-562-11	INSULATOR	
* 208	4-977-924-01	SPRING (OP), LEAF	
209	1-775-991-11	WIRE (FLAT TYPE) (16 CORE)	
⚠210	8-848-379-31	OPTICAL PICK-UP KSS-213B/S-N	
211	4-977-923-01	SHAFT, SLED	
212	4-977-926-01	RACK, SLIDE	
213	4-977-925-01	SPRING (SLIDE BASE), COMPRESSION	
214	4-968-871-01	WASHER (SPINDLE)	
215	4-968-867-01	CAP, CENTERING	
216	4-968-869-01	SPRING (CENTERING), COMPRESSION	
217	A-4660-814-A	PULLEY ASSY, DISK	
218	4-971-266-01	SCREW (M2.6X4)	
219	X-4947-796-1	BASE ASSY, SLIDE	
220	X-4947-797-1	ROTOR ASSY	
221	1-777-842-11	WIRE (FLAT TYPE) (10 CORE)	
222	A-4699-360-A	BSL BOARD, COMPLETE	
223	X-4947-838-1	STABILIZER ASSY	
M1	X-4947-303-1	MOTOR ASSY (SLED)	

BD

SECTION 8
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service.
  Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA. . : µA. . uPA. . : µPA. .
  uPB. . : µPB. . uPC. . : µPC. .
  uPD. . : µPD. .
- CAPACITORS
  uF: µF
- COILS
  uH: µH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
*	A-4699-708-A	BD BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C93	1-124-997-11	ELECT	470uF	20%	10V
C94	1-124-997-11	ELECT	470uF	20%	10V
C101	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C102	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C103	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C104	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C105	1-135-155-21	TANTALUM CHIP	4.7uF	10%	16V
C108	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C109	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C110	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C111	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C112	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C113	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C114	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C115	1-124-673-11	ELECT	100uF	20%	10V
C116	1-124-673-11	ELECT	100uF	20%	10V
C117	1-126-209-11	ELECT	100uF	20%	4V
C118	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C119	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C122	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C123	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C124	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C125	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C126	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C127	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C128	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C131	1-164-346-11	CERAMIC CHIP	1uF		16V
C132	1-164-346-11	CERAMIC CHIP	1uF		16V
C140	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C141	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C151	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C152	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C153	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C154	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C155	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C156	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C157	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C158	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C161	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C162	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C163	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C171	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C172	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C173	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C175	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C261	1-126-177-11	ELECT	100uF	20%	10V
C325	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C351	1-125-622-11	CAPACITOR	0.1F		5.5V
C352	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C360	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C370	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C371	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C372	1-126-177-11	ELECT	100uF	20%	10V
		< CONNECTOR >			
CN101	1-691-894-21	SOCKET, CONNECTOR 16P			
* CN102	1-563-017-11	CONNECTOR, FPC 30P			
* CN103	1-568-941-11	PIN, CONNECTOR 3P			
* CN104	1-564-518-11	PLUG, CONNECTOR 3P			
* CN105	1-564-518-11	PLUG, CONNECTOR 3P			
CN106	1-568-853-11	SOCKET, CONNECTOR 10P			
* CN107	1-568-852-11	SOCKET, CONNECTOR 9P			
CN113	1-506-481-11	PIN, CONNECTOR 2P			
		< DIODE >			
D101	8-719-016-74	DIODE 1SS352			
D351	8-719-016-74	DIODE 1SS352			
D361	8-719-938-07	DIODE GL480			
		< IC >			
IC101	8-752-369-78	IC CXD2545Q			
IC102	8-759-071-79	IC BA6297AFP			
IC103	8-752-072-45	IC CXA1821M-T6			
IC104	8-759-071-79	IC BA6297AFP			
IC351	8-752-884-95	IC CXP84124-068Q			
IC352	8-759-289-94	IC LH5160TF			
IC361	8-749-010-61	IC IS471F			
		< COIL >			
L101	1-414-234-11	INDUCTOR, FERRITE BEAD			

Ref. No.	Part No.	Description			Remark
		< TRANSISTOR >			
Q101	8-729-010-08	TRANSISTOR	MSB710-R		
Q102	8-729-010-08	TRANSISTOR	MSB710-R		
Q103	8-729-424-18	TRANSISTOR	UN2113-TX		
Q104	8-729-421-19	TRANSISTOR	UN2213		
Q105	8-729-424-18	TRANSISTOR	UN2113-TX		
Q106	8-729-421-19	TRANSISTOR	UN2213		
Q301	8-729-424-08	TRANSISTOR	UN2111		
Q302	8-729-421-22	TRANSISTOR	UN2211		
		< RESISTOR >			
R101	1-216-077-00	METAL CHIP	15K	5%	1/10W
R102	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R103	1-216-077-00	METAL CHIP	15K	5%	1/10W
R104	1-216-085-00	METAL CHIP	33K	5%	1/10W
R105	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R106	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R107	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R108	1-216-073-00	METAL CHIP	10K	5%	1/10W
R109	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R110	1-216-025-00	METAL GLAZE	100	5%	1/10W
R111	1-216-693-11	METAL CHIP	56K	0.5%	1/10W
R112	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R113	1-216-073-00	METAL CHIP	10K	5%	1/10W
R114	1-216-073-00	METAL CHIP	10K	5%	1/10W
R115	1-216-677-11	METAL CHIP	12K	0.5%	1/10W
R116	1-216-695-11	METAL CHIP	68K	0.5%	1/10W
R117	1-216-073-00	METAL CHIP	10K	5%	1/10W
R118	1-216-073-00	METAL CHIP	10K	5%	1/10W
R119	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R120	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R121	1-216-073-00	METAL CHIP	10K	5%	1/10W
R122	1-216-073-00	METAL CHIP	10K	5%	1/10W
R123	1-216-073-00	METAL CHIP	10K	5%	1/10W
R124	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R125	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R126	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R127	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R131	1-216-037-00	METAL CHIP	330	5%	1/10W
R132	1-216-695-11	METAL CHIP	68K	0.5%	1/10W
R133	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R134	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R135	1-216-295-00	CONDUCTOR, CHIP (2012)			
R136	1-216-295-00	CONDUCTOR, CHIP (2012)			
R137	1-216-295-00	CONDUCTOR, CHIP (2012)			
R138	1-216-295-00	CONDUCTOR, CHIP (2012)			
R141	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R142	1-216-081-00	METAL CHIP	22K	5%	1/10W
R143	1-216-103-00	METAL CHIP	180K	5%	1/10W
R144	1-216-103-00	METAL CHIP	180K	5%	1/10W
R145	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R146	1-216-073-00	METAL CHIP	10K	5%	1/10W
R147	1-216-081-00	METAL CHIP	22K	5%	1/10W
R148	1-216-001-00	METAL CHIP	10	5%	1/10W
R149	1-216-003-11	METAL GLAZE	12	5%	1/10W
R150	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W
R151	1-216-073-00	METAL CHIP	10K	5%	1/10W
R152	1-216-073-00	METAL CHIP	10K	5%	1/10W
R153	1-216-073-00	METAL CHIP	10K	5%	1/10W
R154	1-216-073-00	METAL CHIP	10K	5%	1/10W
R155	1-216-073-00	METAL CHIP	10K	5%	1/10W
R156	1-216-073-00	METAL CHIP	10K	5%	1/10W
R157	1-216-025-00	METAL GLAZE	100	5%	1/10W
R161	1-216-308-00	METAL CHIP	4.7	5%	1/10W
R167	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R168	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R169	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R171	1-216-073-00	METAL CHIP	10K	5%	1/10W
R172	1-216-073-00	METAL CHIP	10K	5%	1/10W
R173	1-216-073-00	METAL CHIP	10K	5%	1/10W
R174	1-216-073-00	METAL CHIP	10K	5%	1/10W
R175	1-216-073-00	METAL CHIP	10K	5%	1/10W
R176	1-216-073-00	METAL CHIP	10K	5%	1/10W
R177	1-216-025-00	METAL GLAZE	100	5%	1/10W
R179	1-216-308-00	METAL CHIP	4.7	5%	1/10W
R180	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W
R181	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R182	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R183	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R184	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R186	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R187	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W
R188	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R189	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W
R190	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R191	1-216-695-11	METAL CHIP	68K	0.5%	1/10W
R192	1-216-001-00	METAL CHIP	10	5%	1/10W
R193	1-216-001-00	METAL CHIP	10	5%	1/10W
R195	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R196	1-216-073-00	METAL CHIP	10K	5%	1/10W
R197	1-216-073-00	METAL CHIP	10K	5%	1/10W
R301	1-216-623-11	METAL CHIP	68	0.5%	1/10W
R312	1-216-073-00	METAL CHIP	10K	5%	1/10W
R351	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R352	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R353	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R354	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R355	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R356	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R357	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R358	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R359	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R360	1-216-647-11	METAL CHIP	680	0.5%	1/10W
R361	1-216-615-11	METAL CHIP	33	0.5%	1/10W
R362	1-216-295-00	CONDUCTOR, CHIP (2012)			
R364	1-216-017-00	METAL GLAZE	47	5%	1/10W
R365	1-216-017-00	METAL GLAZE	47	5%	1/10W
R366	1-216-073-00	METAL CHIP	10K	5%	1/10W
R367	1-216-017-00	METAL GLAZE	47	5%	1/10W
R371	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R372	1-216-073-00	METAL CHIP	10K	5%	1/10W
		< SWITCH >			
S153	1-762-930-11	SWITCH, LEVER (LOAD OUT)			

BD | **BD TRANSLATION** | **BSL** | **DISPLAY** | **HP**

Ref. No.	Part No.	Description			Remark
		< VIBRATOR >			
X351	1-577-358-21	VIBRATOR, CERAMIC (4MHz)			
**********					
*	1-663-580-11	BD TRANSLATION BOARD			
		**********			
		< CONNECTOR >			
* CN108	1-568-933-11	SOCKET, CONNECTOR 30P			
CN109	1-774-380-11	CONNECTOR, FFC/FPC 16P			
CN110	1-580-864-11	SOCKET, CONNECTOR (SMT) 10P			
		< SWITCH >			
SW102	1-571-958-11	SWITCH, PUSH (1 KEY) (LIMIT SW)			
**********					
	A-4699-360-A	BSL BOARD, COMPLETE			
		**********			
	1-580-881-11	SOCKET, CONNECTOR (SMT) 10P			
		< DIODE >			
H11	8-719-987-62	DIODE LT140SAZ			
H12	8-719-987-62	DIODE LT140SAZ			
		< RESISTOR >			
R01	1-216-295-00	CONDUCTOR, CHIP (2012)			
R02	1-216-295-00	CONDUCTOR, CHIP (2012)			
R11	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R12	1-216-049-00	METAL GLAZE	1K	5%	1/10W
**********					
*	A-4699-353-A	DISPLAY BOARD, COMPLETE			
		**********			
*	4-969-510-01	HOLDER (FL)			
		< CAPACITOR >			
C801	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C802	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C803	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C804	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C805	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C806	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C807	1-163-031-11	CERAMIC CHIP	0.01uF		50V
		< CONNECTOR >			
CN810	1-568-853-11	SOCKET, CONNECTOR 10P			
		< FLUORECENT INDICATOR >			
FLD801	1-517-357-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC801	8-759-324-36	IC LC7570E			
IC802	8-759-324-36	IC LC7570E			
IC803	8-759-324-36	IC LC7570E			
IC804	8-759-373-48	IC NJL53H400			

Ref. No.	Part No.	Description			Remark
		< TRANSISTOR >			
Q804	8-729-424-18	TRANSISTOR UN2113-TX			
Q805	8-729-421-19	TRANSISTOR UN2213			
		< RESISTOR >			
R817	1-216-045-00	METAL CHIP	680	5%	1/10W
R827	1-216-029-00	METAL CHIP	150	5%	1/10W
R828	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R829	1-216-097-00	METAL GLAZE	100K	5%	1/10W
		< SWITCH >			
S819	1-554-303-21	SWITCH, TACTILE (P MODE)			
S820	1-554-303-21	SWITCH, TACTILE (TIME)			
**********					
*	A-4699-566-A	HP BOARD, COMPLETE (BLACK)			
*	A-4699-710-A	HP BOARD, COMPLETE (GOLD)			
		**********			
		< CAPACITOR >			
C365	1-126-012-11	ELECT	470uF	20%	16V
C366	1-126-012-11	ELECT	470uF	20%	16V
C405	1-164-159-11	CERAMIC	0.1uF		50V
C550	1-162-294-31	CERAMIC	0.001uF	10%	50V
C650	1-162-294-31	CERAMIC	0.001uF	10%	50V
		< CONNECTOR >			
CN402	1-564-523-11	PLUG, CONNECTOR 8P			
CN407	1-564-524-11	PLUG, CONNECTOR 9P			
		< IC >			
IC354	8-759-962-08	IC BA6208			
IC356	8-759-981-85	IC RC4556D			
		< JACK >			
J401	1-750-162-61	JACK (LARGE TYPE) (PHONES) (BLACK)			
J401	1-779-219-11	JACK (LARGE TYPE) (PHONES) (GOLD)			
		< COIL >			
L310	1-412-473-21	INDUCTOR	0uH		
L311	1-412-473-21	INDUCTOR	0uH		
L503	1-412-473-21	INDUCTOR	0uH		
L603	1-412-473-21	INDUCTOR	0uH		
		< TRANSISTOR >			
Q504	8-729-141-30	TRANSISTOR 2SC3623A-LK			
Q604	8-729-141-30	TRANSISTOR 2SC3623A-LK			
		< RESISTOR >			
R369	1-247-807-31	CARBON	100	5%	1/4W
R370	1-247-807-31	CARBON	100	5%	1/4W
R532	1-249-441-11	CARBON	100K	5%	1/4W
R533	1-247-890-11	CARBON	300K	5%	1/4W
R534	1-249-441-11	CARBON	100K	5%	1/4W
R535	1-247-890-11	CARBON	300K	5%	1/4W
R536	1-249-402-11	CARBON	56	5%	1/4W
R537	1-249-425-11	CARBON	4.7K	5%	1/4W
R632	1-249-441-11	CARBON	100K	5%	1/4W
R633	1-247-890-11	CARBON	300K	5%	1/4W

Ref. No.	Part No.	Description			Remark
R634	1-249-441-11	CARBON	100K	5%	1/4W
R635	1-247-890-11	CARBON	300K	5%	1/4W
R636	1-249-402-11	CARBON	56	5%	1/4W
R637	1-249-425-11	CARBON	4.7K	5%	1/4W
		< VARIABLE RESISTOR >			
VR405	1-223-747-11	RES, VAR, CARBON 10K/10K			(LINE OUT PHONE LEVEL)
**********					
*	1-663-579-11	LOADING MOTOR BOARD			
		**********			
		< CAPACITOR >			
C181	1-126-023-11	ELECT	100uF	20%	25V
C182	1-126-023-11	ELECT	100uF	20%	25V
C183	1-164-699-11	CERAMIC CHIP	0.0033uF	5%	50V
C184	1-126-059-11	ELECT	10uF	20%	50V
C185	1-163-038-00	CERAMIC CHIP	0.1uF		25V
		< IC >			
IC181	8-759-202-01	IC TA7256P			
IC182	8-759-100-96	IC uPC4558G2			
		< RESISTOR >			
R001	1-216-073-00	METAL CHIP	10K	5%	1/10W
R002	1-216-073-00	METAL CHIP	10K	5%	1/10W
R003	1-216-073-00	METAL CHIP	10K	5%	1/10W
R004	1-216-073-00	METAL CHIP	10K	5%	1/10W
R005	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R006	1-216-047-00	METAL GLAZE	820	5%	1/10W
R007	1-216-025-00	METAL GLAZE	100	5%	1/10W
R008	1-216-045-00	METAL CHIP	680	5%	1/10W
¡ R009	1-249-474-11	CARBON	1	5%	1/2W F
R010	1-216-001-00	METAL CHIP	10	5%	1/10W
**********					
*	1-663-581-11	LOADING SW BOARD			
		**********			
		< SWITCH >			
S152	1-762-424-11	SWITCH, MICRO (LOADING SW)			
**********					
*	A-4699-567-A	MAIN BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C259	1-161-494-00	CERAMIC	0.022uF		25V
C260	1-162-215-31	CERAMIC	47PF	5%	50V
C261	1-136-850-11	FILM	0.1uF	5%	63V
C262	1-136-850-11	FILM	0.1uF	5%	63V
C263	1-136-850-11	FILM	0.1uF	5%	63V
C264	1-136-850-11	FILM	0.1uF	5%	63V

Ref. No.	Part No.	Description			Remark
C266	1-136-850-11	FILM	0.1uF	5%	63V
C271	1-124-994-11	ELECT	100uF	20%	10V
C272	1-164-159-11	CERAMIC	0.1uF		50V
C274	1-164-159-11	CERAMIC	0.1uF		50V
C301	1-164-159-11	CERAMIC	0.1uF		50V
C306	1-162-208-31	CERAMIC	24PF	5%	50V
C307	1-164-159-11	CERAMIC	0.1uF		50V
C310	1-164-159-11	CERAMIC	0.1uF		50V
C320	1-128-200-11	ELECT	47uF	20%	63V
C321	1-128-202-11	ELECT	220uF	20%	63V
C322	1-117-775-11	FILM	0.1uF	10%	250V
C323	1-102-947-00	CERAMIC	10PF	5%	50V
C324	1-102-947-00	CERAMIC	10PF	5%	50V
C358	1-164-159-11	CERAMIC	0.1uF		50V
C359	1-126-012-11	ELECT	470uF	20%	16V
C360	1-124-686-71	ELECT	220uF	20%	16V
C362	1-117-914-51	ELECT	330uF	20%	25V
C363	1-117-914-51	ELECT	330uF	20%	25V
C364	1-124-686-71	ELECT	220uF	20%	16V
C370	1-164-159-11	CERAMIC	0.1uF		50V
C371	1-164-159-11	CERAMIC	0.1uF		50V
C501	1-136-850-11	FILM	0.1uF	5%	63V
C502	1-126-023-11	ELECT	100uF	20%	25V
C503	1-136-850-11	FILM	0.1uF	5%	63V
C504	1-128-198-11	ELECT	22uF	20%	50V
C505	1-136-850-11	FILM	0.1uF	5%	63V
C510	1-128-200-11	ELECT	47uF	20%	63V
C512	1-130-892-00	FILM	0.015uF	5%	63V
C516	1-136-850-11	FILM	0.1uF	5%	63V
C517	1-136-850-11	FILM	0.1uF	5%	63V
C518	1-128-200-11	ELECT	47uF	20%	63V
C519	1-128-198-51	ELECT	22uF	20%	63V
C520	1-128-200-11	ELECT	47uF	20%	63V
C521	1-130-973-00	FILM	0.022uF	5%	100V
C522	1-130-955-00	FILM	0.01uF	5%	100V
C523	1-130-955-00	FILM	0.01uF	5%	100V
C524	1-130-339-11	FILM	0.0056uF	5%	100V
C525	1-130-339-11	FILM	0.0056uF	5%	100V
C526	1-136-814-11	FILM	0.001uF	5%	100V
C527	1-136-814-11	FILM	0.001uF	5%	100V
C530	1-136-817-11	FILM	0.0033uF	2%	100V
C531	1-136-813-11	FILM	680PF	5%	100V
C532	1-128-201-11	ELECT	100uF	20%	50V
C533	1-137-506-11	FILM	0.47uF	10%	63V
C535	1-136-802-11	FILM	0.015uF	5%	100V
C536	1-128-198-51	ELECT	22uF	20%	63V
C537	1-128-201-11	ELECT	100uF	20%	50V
C601	1-136-850-11	FILM	0.1uF	5%	63V
C602	1-126-023-11	ELECT	100uF	20%	25V
C603	1-136-850-11	FILM	0.1uF	5%	63V
C604	1-128-198-11	ELECT	22uF	20%	50V
C605	1-136-850-11	FILM	0.1uF	5%	63V
C610	1-128-200-11	ELECT	47uF	20%	63V

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

MAIN

Ref. No.	Part No.	Description			Remark
C612	1-136-802-11	FILM	0.015uF	5%	100V
C615	1-130-973-00	FILM	0.022uF	5%	100V
C616	1-136-850-11	FILM	0.1uF	5%	63V
C617	1-136-850-11	FILM	0.1uF	5%	63V
C618	1-136-850-11	FILM	0.1uF	5%	63V
C619	1-128-198-11	ELECT	22uF	20%	50V
C620	1-128-198-11	ELECT	22uF	20%	50V
C621	1-130-973-00	FILM	0.022uF	5%	100V
C622	1-130-955-00	FILM	0.01uF	5%	100V
C623	1-130-955-00	FILM	0.01uF	5%	100V
C624	1-130-339-11	FILM	0.0056uF	5%	100V
C625	1-130-339-11	FILM	0.0056uF	5%	100V
C626	1-136-814-11	FILM	0.001uF	5%	100V
C627	1-136-814-11	FILM	0.001uF	5%	100V
C630	1-136-817-11	FILM	0.0033uF	2%	100V
C631	1-136-813-11	FILM	680PF	5%	100V
C632	1-128-201-11	ELECT	100uF	20%	50V
C633	1-137-506-11	FILM	0.47uF	10%	63V
C635	1-136-802-11	FILM	0.015uF	5%	100V
C636	1-128-198-51	ELECT	22uF	20%	63V
C637	1-128-201-11	ELECT	100uF	20%	50V
		< CONNECTOR >			
CN201	1-564-506-11	PLUG, CONNECTOR 3P			
* CN301	1-568-835-11	SOCKET, CONNECTOR 16P			
CN302	1-564-511-11	PLUG, CONNECTOR 8P			
* CN303	1-564-509-11	PLUG, CONNECTOR 6P			
CN304	1-564-509-11	PLUG, CONNECTOR 6P			
CN305	1-564-506-11	PLUG, CONNECTOR 3P			
		< DIODE >			
D220	8-719-210-21	DIODE 11EQS04			
D221	8-719-210-21	DIODE 11EQS04			
D261	8-719-987-31	DIODE 1N4148M			
D262	8-719-987-31	DIODE 1N4148M			
D263	8-719-987-31	DIODE 1N4148M			
D264	8-719-987-31	DIODE 1N4148M			
D301	8-719-987-63	DIODE 1N4148M			
D302	8-719-109-98	DIODE RD6.8ES-B3			
D303	8-719-987-63	DIODE 1N4148M			
		< IC >			
IC208	8-749-921-12	IC GP1F32T (DIGITAL OUT OPTICAL)			
IC211	8-759-604-86	IC M5F7807L			
IC212	8-759-604-90	IC M5F7907L			
IC213	8-759-231-53	IC TA7805S			
IC251	8-759-242-70	IC TC7WU04F			
IC301	8-759-462-70	IC CXD8679Q			
IC302	8-759-454-42	IC CXD2562Q-CS			
IC303	8-759-180-84	IC TC7W74F			
IC501	8-759-371-51	IC CXA8042AS			
IC502	8-759-443-33	IC OPA2132PA			

Ref. No.	Part No.	Description			Remark
IC503	8-759-259-12	IC OPA2604AP			
IC601	8-759-371-51	IC CXA8042AS			
IC602	8-759-443-33	IC OPA2132PA			
IC603	8-759-259-12	IC OPA2604AP			
		< JACK >			
J301	1-569-443-21	JACK, PIN 4P (LINE OUT)			
J351	1-770-905-21	JACK, PIN 1P (DIGITAL OUT COAXIAL)			
		< COIL >			
L251	1-410-322-11	INDUCTOR 3.3uH			
L252	1-410-322-11	INDUCTOR 3.3uH			
L302	1-410-503-11	INDUCTOR 3.3uH			
L303	1-410-322-11	INDUCTOR 3.3uH			
L304	1-410-970-11	INDUCTOR 6.8uH			
L504	1-412-473-21	INDUCTOR 0uH			
L505	1-412-473-21	INDUCTOR 0uH			
L604	1-412-473-21	INDUCTOR 0uH			
L605	1-412-473-21	INDUCTOR 0uH			
		< FILTER >			
LPF201	1-424-153-11	FILTER, NOISE			
LPF202	1-424-153-11	FILTER, NOISE			
LPF301	1-424-153-11	FILTER, NOISE			
		< TRANSISTOR >			
Q301	8-729-900-65	TRANSISTOR DTA144ES			
		< RESISTOR >			
R254	1-249-393-11	CARBON	10	5%	1/4W
R255	1-249-417-11	CARBON	1K	5%	1/4W
R256	1-249-401-11	CARBON	47	5%	1/4W
R257	1-249-393-11	CARBON	10	5%	1/4W
R258	1-249-417-11	CARBON	1K	5%	1/4W
R259	1-249-417-11	CARBON	1K	5%	1/4W
R260	1-249-417-11	CARBON	1K	5%	1/4W
R262	1-249-401-11	CARBON	47	5%	1/4W
R263	1-249-393-11	CARBON	10	5%	1/4W
R301	1-249-437-11	CARBON	47K	5%	1/4W
R302	1-249-417-11	CARBON	1K	5%	1/4W
R303	1-249-417-11	CARBON	1K	5%	1/4W
R306	1-249-409-11	CARBON	220	5%	1/4W
R307	1-249-417-11	CARBON	1K	5%	1/4W
R310	1-249-441-11	CARBON	100K	5%	1/4W
R311	1-249-417-11	CARBON	1K	5%	1/4W
R312	1-249-417-11	CARBON	1K	5%	1/4W
R313	1-249-411-11	CARBON	330	5%	1/4W
R314	1-249-417-11	CARBON	1K	5%	1/4W
R315	1-249-411-11	CARBON	330	5%	1/4W
R316	1-249-441-11	CARBON	100K	5%	1/4W
R317	1-249-409-11	CARBON	220	5%	1/4W
R321	1-249-429-11	CARBON	10K	5%	1/4W
¡ R351	1-217-997-11	FUSIBLE	10	5%	1/2W F

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
R501	1-259-380-11	CARBON	10	5%	1/6W
R502	1-259-380-11	CARBON	10	5%	1/6W
R503	1-259-380-11	CARBON	10	5%	1/6W
R504	1-259-380-11	CARBON	10	5%	1/6W
R505	1-249-455-11	CARBON	4.7	5%	1/4W
R506	1-249-520-11	CARBON	47	5%	1/4W
R508	1-249-911-11	CARBON	330	1%	1/4W
R509	1-249-911-11	CARBON	330	1%	1/4W
R510	1-249-887-11	CARBON	33	1%	1/4W
R511	1-249-887-11	CARBON	33	1%	1/4W
R512	1-249-931-11	CARBON	2.2K	1%	1/4W
R513	1-249-931-11	CARBON	2.2K	1%	1/4W
R514	1-249-933-11	CARBON	2.7K	1%	1/4W
R515	1-249-933-11	CARBON	2.7K	1%	1/4W
R516	1-249-553-11	CARBON	1.1K	5%	1/4W
R517	1-249-560-00	CARBON	2.2K	5%	1/4W
R519	1-249-528-00	CARBON	100	5%	1/4W
R520	1-249-606-11	CARBON	180K	5%	1/4W
R523	1-247-891-00	CARBON	330K	5%	1/4W
R539	1-259-416-11	CARBON	330	5%	1/6W
R540	1-259-416-11	CARBON	330	5%	1/6W
R541	1-259-416-11	CARBON	330	5%	1/6W
R542	1-259-416-11	CARBON	330	5%	1/6W
R543	1-249-504-11	CARBON	10	5%	1/4W
R550	1-249-917-11	CARBON	560	1%	1/4W
R551	1-249-560-00	CARBON	2.2K	5%	1/4W
R601	1-259-380-11	CARBON	10	5%	1/6W
R602	1-259-380-11	CARBON	10	5%	1/6W
R603	1-259-380-11	CARBON	10	5%	1/6W
R604	1-259-380-11	CARBON	10	5%	1/6W
R605	1-249-455-11	CARBON	4.7	5%	1/4W
R606	1-249-520-11	CARBON	47	5%	1/4W
R608	1-249-911-11	CARBON	330	1%	1/4W
R609	1-249-911-11	CARBON	330	1%	1/4W
R610	1-249-887-11	CARBON	33	1%	1/4W
R611	1-249-887-11	CARBON	33	1%	1/4W
R612	1-249-931-11	CARBON	2.2K	1%	1/4W
R613	1-249-931-11	CARBON	2.2K	1%	1/4W
R614	1-249-933-11	CARBON	2.7K	1%	1/4W
R615	1-249-933-11	CARBON	2.7K	1%	1/4W
R616	1-249-553-11	CARBON	1.1K	5%	1/4W
R617	1-249-560-00	CARBON	2.2K	5%	1/4W
R619	1-249-528-00	CARBON	100	5%	1/4W
R620	1-249-606-11	CARBON	180K	5%	1/4W
R623	1-247-891-00	CARBON	330K	5%	1/4W
R639	1-259-416-11	CARBON	330	5%	1/6W
R640	1-259-416-11	CARBON	330	5%	1/6W
R641	1-259-416-11	CARBON	330	5%	1/6W
R642	1-259-416-11	CARBON	330	5%	1/6W
R643	1-249-504-11	CARBON	10	5%	1/4W
R650	1-249-917-11	CARBON	560	1%	1/4W
R651	1-249-560-00	CARBON	2.2K	5%	1/4W
		< RELAY >			
RY301	1-515-804-11	RELAY			

Ref. No.	Part No.	Description			Remark
		< TRANSFORMER >			
T201	1-409-594-11	COIL (WITH CORE)			
		< VIBRATOR >			
X321	1-579-161-11	VIBRATOR, CRYSTAL (45MHz)			
**********					
*	A-4699-354-A	PANEL BOARD, COMPLETE			
		**********			
		< CONNECTOR >			
* CN817	1-568-852-11	SOCKET, CONNECTOR 9P			
		< DIODE >			
D801	8-719-303-02	DIODE SEL2510C-D (►)			
D802	8-719-301-52	DIODE SEL2810A-C (❚❚)			
D803	8-719-046-41	DIODE SEL5521C-TP15 (FILTER)			
		< TRANSISTOR >			
Q801	8-729-900-80	TRANSISTOR DTC114ES			
Q802	8-729-900-80	TRANSISTOR DTC114ES			
Q803	8-729-900-80	TRANSISTOR DTC114ES			
		< RESISTOR >			
R801	1-249-415-11	CARBON	680	5%	1/4W
R802	1-249-417-11	CARBON	1K	5%	1/4W
R803	1-249-419-11	CARBON	1.5K	5%	1/4W
R804	1-249-421-11	CARBON	2.2K	5%	1/4W
R805	1-247-843-11	CARBON	3.3K	5%	1/4W
R806	1-249-427-11	CARBON	6.8K	5%	1/4W
R811	1-249-415-11	CARBON	680	5%	1/4W
R812	1-249-417-11	CARBON	1K	5%	1/4W
R813	1-249-419-11	CARBON	1.5K	5%	1/4W
R814	1-249-421-11	CARBON	2.2K	5%	1/4W
R815	1-247-843-11	CARBON	3.3K	5%	1/4W
R816	1-249-427-11	CARBON	6.8K	5%	1/4W
R821	1-249-410-11	CARBON	270	5%	1/4W
R822	1-249-406-11	CARBON	120	5%	1/4W
R823	1-249-410-11	CARBON	270	5%	1/4W
R831	1-249-429-11	CARBON	10K	5%	1/4W
R832	1-249-429-11	CARBON	10K	5%	1/4W
		< VARIABLE RESISTOR >			
RV801	1-475-006-11	ENCODER, ROTARY (AMS/⏮⏪⏩⏭ PUSH ENTER)			
		< SWITCH >			
S801	1-554-303-21	SWITCH, TACTILE (ERASE)			
S802	1-554-303-21	SWITCH, TACTILE (CHECK)			
S803	1-554-303-21	SWITCH, TACTILE (CLEAR)			
S804	1-554-303-21	SWITCH, TACTILE (FILTER)			
S805	1-554-303-21	SWITCH, TACTILE (◄◄)			
S806	1-554-303-21	SWITCH, TACTILE (►►)			
S811	1-554-303-21	SWITCH, TACTILE (EDIT/TIME FADE)			
S812	1-554-303-21	SWITCH, TACTILE (REPEAT)			
S813	1-554-303-21	SWITCH, TACTILE (FILE)			
S814	1-554-303-21	SWITCH, TACTILE (⏏ OPEN/CLOSE)			

PANEL | **POWER** | **POWER SW**

Ref. No.	Part No.	Description				Remark
S815	1-554-303-21	SWITCH, TACTILE (►)				
S816	1-554-303-21	SWITCH, TACTILE (❚❚)				
S817	1-554-303-21	SWITCH, TACTILE (■)				
**********						
*	A-4699-712-A	POWER BOARD, COMPLETE				
		**********				
*	4-962-201-01	PLATE (HP), GROUND				
	7-685-871-01	SCREW +BVTT 3X6 (S)				
		< CAPACITOR >				
C201	1-110-578-11	ELECT	3300uF	20%	25V	
C202	1-110-578-11	ELECT	3300uF	20%	25V	
C203	1-128-091-11	ELECT	1000uF	20%	50V	
C204	1-128-091-11	ELECT	1000uF	20%	50V	
C207	1-124-556-11	ELECT	2200uF	20%	16V	
C209	1-124-563-11	ELECT	2200uF	20%	25V	
C210	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C211	1-126-162-11	ELECT	3.3uF	20%	50V	
C213	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C215	1-126-059-11	ELECT	10uF	20%	50V	
C216	1-126-017-11	ELECT	6800uF	20%	16V	
C217	1-126-017-11	ELECT	6800uF	20%	16V	
C218	1-124-556-11	ELECT	2200uF	20%	16V	
C219	1-124-556-11	ELECT	2200uF	20%	16V	
C220	1-164-159-11	CERAMIC	0.1uF		50V	
C221	1-162-286-31	CERAMIC	220PF	10%	50V	
C251	1-126-026-11	ELECT	470uF	20%	25V	
C252	1-126-059-11	ELECT	10uF	20%	50V	
C253	1-126-059-11	ELECT	10uF	20%	50V	
		< CONNECTOR >				
* CN203	1-564-509-11	PLUG, CONNECTOR 6P				
CN204	1-691-766-11	PLUG (MICRO CONNECTOR) 4P				
CN205	1-564-506-11	PLUG, CONNECTOR 3P				
* CN206	1-568-954-11	PIN, CONNECTOR 5P				
* CN207	1-564-512-11	PLUG, CONNECTOR 9P				
* CN251	1-564-506-11	PLUG, CONNECTOR 3P				
* CN309	1-564-514-11	PLUG, CONNECTOR 11P				
		< DIODE >				
D201	8-719-210-21	DIODE 11EQS04				
D202	8-719-210-21	DIODE 11EQS04				
D203	8-719-210-21	DIODE 11EQS04				
D204	8-719-210-21	DIODE 11EQS04				
D205	8-719-210-21	DIODE 11EQS04				
D206	8-719-975-85	DIODE ERB83-004				
D207	8-719-975-85	DIODE ERB83-004				
D208	8-719-975-85	DIODE ERB83-004				
D209	8-719-975-85	DIODE ERB83-004				
D210	8-719-987-63	DIODE 1N4148M				
D211	8-719-114-30	DIODE RD5.1JS-B2				
D212	8-719-210-21	DIODE 11EQS04				
D213	8-719-987-63	DIODE 1N4148M				
D214	8-719-987-63	DIODE 1N4148M				
D215	8-719-987-63	DIODE 1N4148M				
D251	8-719-024-99	DIODE 11ES2-NTA2B				
D252	8-719-010-89	DIODE UZ-18BSA-TP				
D253	8-719-114-30	DIODE RD5.1JS-B2				
D353	8-719-987-63	DIODE 1N4148M				
		< GROUND TERMINAL >				
EB201	1-537-770-21	TERMINAL BOARD, GROUND				
		< IC >				
IC201	8-759-231-58	IC TA7812S				
IC202	8-759-245-86	IC TA7912S				
IC204	8-759-231-53	IC TA7805S				
IC206	8-759-636-16	IC M51957AL				
IC209	8-759-231-53	IC TA7805S				
IC210	8-759-245-79	IC TA79005S				
		< TRANSISTOR >				
Q251	8-729-140-97	TRANSISTOR 2SB734-34				
Q352	8-729-422-57	TRANSISTOR UN4111				
		< RESISTOR >				
R201	1-249-436-11	CARBON	39K	5%	1/4W	
R202	1-249-431-11	CARBON	15K	5%	1/4W	
R203	1-247-843-11	CARBON	3.3K	5%	1/4W	
R204	1-249-413-11	CARBON	470	5%	1/4W	
R205	1-249-417-11	CARBON	1K	5%	1/4W	
¡ R251	1-212-869-00	FUSIBLE	33	5%	1/4W	F
R252	1-247-843-11	CARBON	3.3K	5%	1/4W	
R253	1-249-435-11	CARBON	33K	5%	1/4W	
R363	1-249-441-11	CARBON	100K	5%	1/4W	
**********						
*	1-663-575-12	POWER SW BOARD				
		**********				
		< CAPACITOR >				
¡ C991	1-113-916-11	CERAMIC	0.01uF	20%	250V	
		< CONNECTOR >				
CN994	1-690-123-51	REED (WITH CONNECTOR) (2 CORE) 2P				
		< SWITCH >				
¡ S991	1-572-267-51	SWITCH, PUSH (AC POWER) (1 KEY)				
**********						

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
*	1-663-576-13	VOL SEL BOARD	
		**********	
		< CAPACITOR >	
¡ C992	1-113-916-11	CERAMIC 0.01uF 20% 250V	
		< CONNECTOR >	
CN991	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P	
CN992	1-564-321-00	PIN, CONNECTOR 2P	
CN993	1-770-128-11	PIN, CONNECTOR 2P	
* CN995	1-564-321-21	PIN, CONNECTOR 2P (Singapore)	
		< SWITCH >	
¡ S992	1-571-722-11	SWITCH, VOLTAGE SELECTION (VOLTAGE SELECTOR) (Singapore)	
		< LINE FILTER >	
¡ T603	1-424-485-11	FILTER, LINE	
**********			
		MISCELLANEOUS	
		**********	
6	1-777-844-11	WIRE (FLAT TYPE) (9 CORE)	
7	1-777-845-11	WIRE (FLAT TYPE) (10 CORE)	
105	1-777-873-11	WIRE (FLAT TYPE) (16 CORE)	
114	1-543-653-11	CORE ASSY, BEAD (DIVISION TYPE)	
162	1-777-843-11	WIRE (FLAT TYPE) (30 CORE)	
209	1-775-991-11	WIRE (FLAT TYPE) (16 CORE)	
¡ 210	8-848-379-31	OPTICAL PICK-UP KSS-213B/S-N	
221	1-777-842-11	WIRE (FLAT TYPE) (10 CORE)	
¡ CNP1	1-558-568-21	CORD, POWER	
M1	X-4947-303-1	MOTOR ASSY (SLED)	
M2	A-4640-970-A	MOTOR ASSY (SLED)	
¡ T1	1-431-214-11	TRANSFORMER, POWER (Singapore)	
¡ T1	1-431-215-11	TRANSFORMER, POWER (AEP)	
**********			
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-871-09	SCREW +BVTP 3X6 (S)	
#2	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#3	7-685-871-01	SCREW +BVTP 3X6 (S)	
#4	7-685-885-09	SCREW +BVTP 4X16 (S)	
#5	7-621-770-67	SCREW +PWH 2.6X6	
#6	7-685-872-09	SCREW +BVTP 3X8 (S)	
#7	7-627-852-07	SCREW, RECISION +P 1.7X2.5	
**********			

Ref. No.	Part No.	Description	Remark
		ACCESSORIS & PACKING MATERIALS	
		**********	
	1-473-944-11	REMOTE COMMANDER (RM-D950)	
	1-590-925-31	CORD, CONNECTION (AUDIO 100cm)	
	3-707-584-21	COVER, BATTERY (for RM-D950) (ENGLISH, FRENCH, SPANISH, SWEDISH)	
	3-858-365-21	MANUAL, INSTRUCTION (GERMAN, DUTCH, ITALIAN, PORTUGUESE) (AEP)	
	3-858-365-31	MANUAL, INSTRUCTION (CHINESE)	(Singapore)

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Replace only with part number specified.

9-960-817-11

Sony Corporation
Home A&V Products Company

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